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THE FINANCIAL SERVICES REVOLUTION

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LUME 7 NUMBER 3 • PUBLISHED BY THE CATO INSTITUTE • WINTER 1988

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The CATO JOURNAL is indexed and abstracted in the *Journal of Economic Literature, Current Contents/Social and Behavioral Sciences, Social Sciences Citation Index,* and the ABI/INFORM database. The CATO JOURNAL is available on microfilm from University Microfilms International, Ann Arbor, Michigan 48106.

Printed in the United States of America.

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EDITOR'S NOTE

The regulatory straitjacket that has been placed on depository institutions for more than 30 years is wearing thin as technological changes usher in a financial services revolution. With more efficient communications systems and a worldwide financial services industry, the deregulation of banking is long overdue. Yet there is considerable resistance to efforts to change the existing banking laws. While it is generally accepted that competition and open markets are socially beneficial, banking has been assumed to be "inherently unstable" and in need of government oversight. That assumption is only now being questioned in some quarters despite episodes of "free banking" in Scotland and the United States that lend support to the idea that competition in banking is in the interest of consumers. Historical evidence supports the contention that consumers of banking services in a less regulated setting benefitted from innovation and the survival of only the more prudent institutions. Meanwhile, evidence from past and present regulation suggests that government intervention often thwarts competitive forces that would impose market discipline on banks and depository institutions in general.

The experience of the Great Depression (1929–1933), during which more than 10,000 banks failed, was the primary event leading to the present regulation of depository institutions in the United States. With the passage of the Banking Act of 1933—the Glass-Steagall Act—existing regulations were reinforced and new ones added: commercial banks were prohibited from engaging in investment banking, branch banking continued to be restricted, interest rates on time and saving deposits were regulated, rates on demand deposits were outlawed, and federal deposit insurance was introduced. This regulatory climate has persisted over time, but today the rapid changes in the financial services sector demand a reassessment of the role of government in banking and financial regulation.

What is the rationale for government regulation of banking and depository institutions? Is banking "inherently unstable" or are there theoretical and historical bases for "free banking"? Do current regulations hinder or promote stability and soundness in banking prac-

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tices? And what changes in the regulatory environment would best serve consumers and enhance the future efficiency of the financial services industry? These and similar questions were the focus of the Cato Institute's **Fifth Annual Monetary Conference**—"The Financial Services Revolution: Policy Directions for the Future"—held in Washington, D.C., February 26–27, 1987.[1]

The papers in this volume fall into three categories: (1) those taking a historical perspective of banks and banking regulation; (2) those investigating the current regulatory apparatus and its effects on the safety and efficiency of depository institutions; and (3) those concerned with the problem of how future changes in the regulatory climate can be implemented so as to increase competition among banks and other depository institutions, and thereby serve consumers more effectively than in the past.[2]

Within the first category, *George Kaufman* presents a historical study illustrating that one should distinguish carefully between individual bank runs and system-wide runs. The former can play an important function in motivating bank managers to take appropriate actions to keep their firms solvent. Kaufman argues that federal deposit insurance should not thwart this disciplinary mechanism and that insolvent banks should be closed and reorganized or recapitalized in a timely fashion to improve the overall safety and efficiency of the banking system. *William Shughart* examines the Glass-Steagall Act, especially as it has prevented the mix of commercial and investment banking since 1933. Taking a public choice perspective, he finds that the legal blockage of a natural tendency for combining these activities into a single financial institution was largely the result of the prevailing interests of investment and commercial bankers to protect their own turfs. Self-interest, not some mythical "public interest," was the motivating force behind Glass-Steagall, argues Shughart. By depriving entrepreneurs of the opportunity to freely combine commercial and investment banking services, the 1933 legislation was at odds with consumers' preferences. The papers by *George Selgin* and

[1]This conference was part of the Cato Institute's Financial Services Deregulation Project, directed by Catherine England and supported by grants from the Ford Foundation, John M. Olin Foundation, Sears, Roebuck and Company, and Chase Manhattan Bank.

[2]Most of the papers in this volume appeared in *The Financial Services Revolution: Policy Directions for the Future*, edited by Catherine England and Thomas Huertas, published by Kluwer Academic Publishers and the Cato Institute (1988). The exceptions are the papers by George Selgin, Kevin Dowd, and Susan Woodward, and the comment by Anna Schwartz on Kaufman's revised paper. Catherine England's major contribution in preparing this issue of the *Cato Journal* is gratefully acknowledged.

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Kevin Dowd draw on banking theory and history to show that unregulated "free banking" is not inherently unstable, provided the proper institutional framework is in place.

In the second category, current regulation and its impact on risk taking and the soundness of depository institutions, *Gerald O'Driscoll* discusses the moral hazard problem inherent in the federal deposit insurance system. When premiums are not adjusted for risk and there is an implicit government guarantee to bail out insolvent institutions, the incentive structure will be biased toward excessive risk taking, weakening the fabric of depository institutions operating under this system. Substituting private insurance for the present government-supported system would change incentives and result in a more stable deposit system, argues O'Driscoll. Moreover, by eliminating the prohibition against interstate branch banking and by allowing banks to diversify, the banking system itself would become more stable, making private deposit insurance easier to implement.

Susan Woodward applies the transaction cost approach to banks and depository institutions. By treating banks as organizations designed to minimize transaction costs and by recognizing "informational assymetries," Woodward explains specific organizational features of banks and the demand for cost-minimizing regulation. She also uses the transaction cost approach to make a case for deposit insurance.

In his paper, *Mark Toma* considers the effectiveness of the Federal Reserve in setting and enforcing reserve requirements prior to and following the Monetary Control Act of 1980, which gave the Fed sole control over reserve requirements. He distinguishes between competitive and monopolistic determination of reserve requirements and shows that without competition from state agencies Fed officials have greater discretion in setting reserve requirements in line with their incentive to maximize seigniorage. Toma therefore views the Monetary Control Act as "a change in the nation's monetary constitution that enhances the wealth-extraction powers of the central government." His comparative institutions approach offers a fruitful method for analyzing all regulatory activity, including the impact of the dual system of banking regulation on incentives and behavior.

Gillian Garcia investigates the institutional and incentive structure of the Federal Savings and Loan Insurance Corporation (FSLIC) and explains why it is " 'broke' in more ways than one." To improve the zombie-like state of the FSLIC requires recognizing the source of the current problem and separating healthy thrifts from insolvent ones. As a step toward solving the S&L crisis, Garcia recommends the timely closure of insolvent institutions, which would strengthen

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the entire industry. She thus agrees, in general, with Kaufman's policy proposals.

The final three papers offer new policy directions to reinvigorate banks and depository institutions. *Thomas Huertas* finds a close correspondence between banking and commercial activities, and sees no reason why individuals ought to be constrained in their decisions about owning a bank or why banks should be barred from diversifying. *Catherine England* attacks the view that unregulated banking is inherently unstable. She argues from both theory and evidence that in the absence of the federal safety net, depositors and bankers could and would develop sources of information and devise contractual arrangements that create an incentive structure conducive to more prudent decision making and stable banking. *Robert Litan,* meanwhile, argues that investment banking and commercial banking practices are compatible and that their joint production should be allowed.

The overriding emphasis of the papers in this volume is on the idea that a greater role for market discipline and a reduced role for government regulation over bank ownership and the scope of banking practices is the appropriate response to the increase in bank failures in the 1980s, not a return to the regulatory straitjacket initiated in the 1930s. As such, these papers should enhance our understanding of the institutional requirements for stable and sound banking and pave the way for meaningful reform of depository institutions. The financial services revolution can then come into full force, serving the interests of consumers as well as producers.

J. A. Dorn

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Bank Runs: Causes, Benefits, and Costs

George G. Kaufman

Introduction

Bank runs have a bad reputation. A shout of "run" strikes the same fear into most of us as a shout of "fire" in a crowded room. We immediately get up and progressively walk, jog, and finally run in panic to the nearest exit even before finding out whether it is a false alarm or how bad the fire may be. After all, it is better to be safe than sorry. Indeed, a shout of "bank run" may evoke even greater fear. Not only will depositors walk, jog, and run to the affected bank to withdraw their funds, but depositors at other banks, not subject to the same bad news, may also run on their banks as bank runs are frequently viewed as contagious. If my neighbor's bank is in trouble, maybe mine is also. Thus, a run on one bank is frequently believed capable not only of causing the failure of a large number of other banks nationwide in domino fashion and of destabilizing the financial system, if not the economy as a whole.[1]

Cato Journal, Vol. 7, No. 3 (Winter 1988). Copyright © Cato Institute. All rights reserved.

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[1]Indeed, it is widely believed that spreading rumors that start a bank run is a crime subject to penalties. No such federal law exists, although some states may have such statutes. In early December 1986, the Magnet Savings Bank, the largest thrift institution in West Virginia, experienced a run when a proposed merger was cancelled. Depositors withdrew about $1 million within 24 hours. In response, the bank offered a $5,000 reward for information leading to the conviction of those starting the rumor. The president of the bank explained that the bank had recently paid a $3,000 reward to catch a bank robber and that he considered the act of spreading rumors at least as

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This belief is not uncommon even among students of banking. For example, in a recent article, Robert Norcross (1986, p. 318) warned that

> Bank failures are no longer isolated and self contained. . . . Today's bank failure is a crisis failure—a failure that will spread to other banks and financial institutions even during economic prosperity. The spark that ignites the flames of failure may still be grounded in mismanagement or fraud, but by the time the regulators douse today's fires, they will have ravaged the credit relationships of banks, businesses and individuals from coast to coast and, possibly, around the world.

At the time of the Continental Illinois National Bank crisis, Comptroller of the Currency C. T. Conover (1984, pp. 287–88), defending the policy of guaranteeing the par value of all deposits and other liabilities of the bank and holding company, argued that if

> Continental had failed and been treated in a way in which depositors and creditors were not made whole, we could very well have seen a national, if not an international, financial crisis the dimensions of which were difficult to imagine. None of us wanted to find out.

Indeed, for many Americans, the term bank run conjures up images of the Great Depression. As a result, official public policy since 1933 has been directed at reducing to the extent possible the basis for any runs on depository institutions.

This paper considers whether the reputation of bank runs is deserved or whether they have received a bum rap. In the process, the paper analyzes the causes of bank runs; examines the implications of runs for the bank(s) directly affected, other banks, the financial system, the community, and the national economy; reviews the history of bank runs; and explores alternative policy prescriptions for eliminating the potentially harmful effects of bank runs.

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serious as robbery. See "Magnet Bank Cites Rumors in Run," *American Banker* (11 December 1986): 2, 9.

Attempts to penalize individuals who doubt the ability of banks to redeem their claims are not new in the United States. A study for the National Monetary Commission by Dewey and Chaddock (1911, vol. 4, p. 74) noted:

> Many in the earlier period of the [19th] century considered it improper and injurious to call upon a bank for specie in payment of its bills. "Brokers who sent home the bills of country banks were denounced as speculators and bloodsuckers, whose extirpation would be a public benefit." Respectable men defended the conduct of banks in interposing obstacles to the payment of their notes to brokers who had brought them up to discount. A Boston broker was brought before a grand jury of Vermont for demanding payment in specie for the bills of one of its banks.

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Causes of Bank Runs

Banks are depository intermediaries that borrow funds from lenders and lend them to borrowers more efficiently than the individual lenders and borrowers can do on their own. Banks' profits are derived from the values added by transforming the denomination, maturity term to repricing, credit quality, currency of denomination, and so forth of the securities sold to lenders or bought from borrowers and assuming the associated risks. Contemporary banks typically raise most of their funds by selling short-term fixed-value debt securities (deposits), many of which contain put options exercisable by the depositor at par at any time. They invest their funds in securities that generally are not fixed-value and do not contain put options exercisable by the bank at par at any time. Thus, the banks assume the risk that the market value of their assets may decline to or below that of their deposit liabilities because of unexpected changes in interest rates, defaults, foreign exchange rates, regulations, fraud, and so on.

To protect themselves against having to bear the risk of loss, depositors, like any other creditors, will, in the absence of deposit insurance or guarantees, both monitor the risk/return profile of their banks' asset and liability portfolios and their capital (equity and subordinated debt). The poorer the risk/return profile and the smaller the capital base, the greater is the probability that a shock will wipe out a bank's capital and that depositors may experience a loss if the bank is not recapitalized or liquidated as soon as the market value of its net worth drops to zero. It appears reasonable to assume that the greater the probability that depositors place on this occurring, the more likely they are to withdraw their funds at the earlier of the deposits' maturity date or exercise date of the put option. The earlier the depositor is able to withdraw the deposit, the more likely is the depositor to receive the full amount of his deposit on time. As long as the cost of transferring deposits is smaller than the value of the ongoing banking relationship, the rational depositor will pursue a better-safe-than-sorry strategy in the face of adverse news about his bank's future prospects. If a large number of a bank's depositors simultaneously assign the same high probability of potential loss to the bank's assets, the bank will experience large simultaneous requests for deposit withdrawals, that is, the bank will experience a run.

Depositors, of course, could be correct or incorrect in their assessment of a bank's financial strength. The implication of the run both for the bank and for the depositors depends in large part on the correctness of the depositors' assessment.[2]

[2]The process of a bank run is described in greater detail in Benston et al. (1986, particularly chap. 2) and in Benston and Kaufman (1986). For an analysis of the causes of bank runs, see Gorton (1986).

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If the depositors underestimate a bank's financial integrity and ignite a run on an economically solvent bank (that is, a bank with assets having a current market value exceeding that of its liabilities), the major problem facing the bank will be the need to obtain additional liquidity quickly to meet the deposit withdrawals successfully. It might obtain the necessary liquidity by borrowing (including the sale of new deposits), by selling assets, or by a combination of the two. If other banks, including those that gain the deposits withdrawn, believe that the affected bank is economically solvent, it will be in their mutual interest to recycle the funds quickly at market rates of interest either by lending to the bank or by purchasing the bank's assets. If a central bank exists, it will also be in society's interest for the central bank to assist in the speedy recycling of funds through appropriate use of the discount window or open market operations. In this scenario, the solvent bank facing a run will not encounter a serious liquidity problem. The run will do little harm to the affected bank, although it will produce a relatively small social cost by increasing uncertainty and causing depositors to expend shoe leather transferring funds.

In the absence of organized assistance from other banks or the central bank, the bank faced with a run will be forced to tap the financial markets and might encounter more serious liquidity problems. The less developed these markets are for particular types of assets, the higher will be the interest rates at which the bank can borrow funds quickly and the lower will be the prices at which the bank can sell assets quickly. The adverse consequences of the bank run will be more severe. In obtaining the necessary liquidity, the affected bank might incur "fire-sale" losses, defined either as the sale of assets at below the price at which they could be sold given normal search time for the highest bidder or as borrowing at a higher rate than if normal search time were available. At some point, the bank might be driven into fire-sale insolvency if, for the moment, the market value of its assets falls below that of its deposits, although the bank would not be insolvent if its assets were valued at equilibrium prices based on more normal search times. In this case, the liquidity problem has begotten a solvency problem, even if only a temporary one.

Unless such a bank is declared legally insolvent by the regulatory authorities as soon as it is economically insolvent, those depositors who run fastest to withdraw their funds from the bank will benefit most as they will receive payment in full. Those who run slowest will be harmed the most as they will be unlikely to receive full or timely payment. Indeed, one of the major reasons for declaring a

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bank legally insolvent as soon as it is economically insolvent is to ensure that all depositors are treated fairly and are permitted to share alike in the distribution of the remaining assets. Such protection of creditors is the major rationale underlying the bankruptcy laws for nonbanking firms. In the scenario in which a bank run drives an economically solvent bank into economic, albeit fire-sale, insolvency, losses will accrue to shareholders and possibly to depositors and uncertainty will increase. Because the economic/social cost of appropriate public policy will be smaller than the economic/social cost of requiring the institution to be recapitalized, sold, or liquidated, it will not be in society's best interests to treat a fire-sale insolvency in the same fashion as a regular insolvency. Thus, under most circumstances and assuming an appropriate policy response, a run will not drive a solvent bank into economic insolvency.

If the depositors are correct in their assessment that the bank is insolvent on the basis of equilibrium market values so that it cannot meet all its deposit claims successfully, the fastest depositors would again benefit relative to slower depositors until the bank is declared legally insolvent and closed. An open insolvent bank can continue to pay deposit claims as long as the bank has sufficient remaining assets to sell or can promise sufficiently high interest rates to attract new deposits. However, in the absence of federal deposit insurance, an insolvent bank could not be expected to borrow from other banks aware of its financial predicament as lending to the insolvent bank would endanger the healthy banks' funds. Nor will the central bank enhance social welfare by providing liquidity to an economically insolvent bank that will use the newly borrowed funds to pay off previous depositors. Although a run on an insolvent bank might increase the bank's losses by forcing progressively greater fire-sale losses from the sale of progressively less liquid assets, in this case the run is the result of the insolvency, not the cause.

Implications of Runs for Other Banks

The effects of a bank run on other banks and the broader economy depend on the response of depositors to the new information about the financial condition of the bank or banks that give rise to the initial run. Individual depositors have three choices when they withdraw their funds from the bank:

1. They can redeposit their funds at another bank that is perceived to be safer;
2. They can purchase a financial security or real asset that is perceived to be safer, for example, a Treasury security; or

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3. They can hold the funds in the form of currency outside the banking system.

Which of these alternatives depositors will choose depends on their analysis of the situation. If their fears are restricted only to the bank or a small number of banks perceived to be in financial difficulties, depositors are likely to redeposit the funds immediately in other nearby banks that are believed to be untouched by the same weaknesses and thus in safer financial condition. The net result is primarily a transfer of deposits and reserves from Bank A to Bank B with no change in aggregate reserves, deposits, and credit. This does not imply that simultaneous runs may not occur on groups of banks, particularly if they are subject to the same actual or perceived market conditions. Regional contagion can occur. But this only involves a larger and more widespread churning of funds within the aggregate banking system. As long as depositors can identify some safe banks in which to redeposit their funds, total deposits will remain basically unchanged and national or systemwide failure contagion can be ruled out. Some small contraction in deposits will occur if banks increase their excess reserves to better protect themselves against runs, but such bank runs will not seriously destabilize the financial system. However, unless Bank A is able either to regain its lost deposits quickly or to finance the deposit loss by the sale of investment securities, some loan customers may be forced to transfer to another bank and would be inconvenienced. Although the evidence is not strong, this cost can be expected to be relatively minor both in private and social terms.

If depositors question the financial viability of all the banks in their market area, they may use their deposits to purchase securities that they believe to be safer substitutes, such as U.S. Treasury securities. In this "flight to quality" scenario, ownership of the deposits is transferred to the seller of the securities, who then has the option of keeping the balances in the buyer's bank, transferring them to another bank, or withdrawing currency. Because security transactions are likely to be large, the seller can be expected both to have a wider range of available banks and to be unlikely to want to hold the balance in the form of currency outside the banking system. Except for drug trafficking, currency is basically used to finance smaller transactions.[3]

[3]Nor can any business organization but the very smallest use currency as an efficient medium of exchange. Nevertheless, in 1907, Henry Ford threatened to "build a vault to take our money out of the banks and put it in the vault, so we can pay our men in cash." Ford did not follow up on this threat. See Kennedy (1973, p. 92).

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The wider the range of banks available to the seller of the security, the greater the probability of finding a safe bank and the more likely it is that the funds will be transferred from the buyer's bank to the seller's bank. This represents an indirect redeposit and is equivalent to the earlier direct redeposit scenario in terms of its effect on total deposits in the banking system. There will, however, be other effects. The demand for riskless securities will push up the price and lower the yield on federal government securities relative to private securities. This may discourage private investment without automatically increasing public spending. At the same time, the churning of deposits among banks may be greater than with direct redeposits, further increasing uncertainty in the economy and reinforcing any downward pressures on economic activity. In addition, more widespread churning of deposits will also require increased recycling of funds by the deposit gaining banks and/or the central bank. Still, the costs of these effects are of a substantially smaller magnitude than those associated with nationwide systemic bank failures.

If both depositors and sellers of safe securities fear the insolvency of all banks, neither group will redeposit funds in other banks, but will hold their balances as currency. In this case, the run is not on one bank but on the banking system. The flight to currency is equivalent to a drain of reserves from the banking system and will both ignite a multiple contraction in money and credit and increase the number and seriousness of bank fire-sale insolvencies. Unless the central bank injects reserves equal to the currency drain to offset the negative effects of the runs, bank failures will be contagious nationwide, tumbling otherwise innocent solvent banks in domino fashion, breaking long-standing bank-customer loan relationships, destabilizing the financial sector, and adversely affecting aggregate economic activity. This is the feared crisis or panic scenario that is vividly portrayed in money and banking textbooks. The private and social costs of a system-wide run are very high and of justifiably great public policy concern.

Despite the relatively mild repercussions of a run on individual banks but serious consequences of a system-wide run, the process by which runs on individual banks turn into runs on the banking system has only rarely been considered rigorously in the literature. Most writers do not seriously question that it occurs almost automatically, and many have accepted it as a matter of faith. For example, John Kareken (1986, pp. 36–37) has written:

> There is . . . [an] argument: that the failure of a bank, unlike the failure of any company not engaged in banking, has third party effects. I have always had difficulty with that argument; I have never

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> been able to understand as well as I would have liked why there are third-party effects. . . . The third-party effects of a bank failure may be real or imagined. Whichever, there is reason enough for me to go on to how banks ought to be regulated.

Unfortunately, the process by and the conditions under which runs on individual banks do turn into runs on the banking system are too important to be ignored. Likewise, the statement that the first automatically leads to the second is too important to be left to faith. Most academic models have assumed a single monopoly bank to begin with and therefore have begged the question.[4] There needs to be more careful analysis as it is evident that completely different public policies will be appropriate if runs on individual banks endanger the entire system than if they do not. The next section analyzes the conditions for a run on an individual bank to turn into a run on the banking system.

History of Bank Runs

Which of the three scenarios described above is most likely to occur depends on the nature of the initial shock that causes the loss of confidence in one or more banks and the institutional arrangements in place at the time. A review of U.S. history before the establishment of the Federal Deposit Insurance Corporation (FDIC) in 1934 indicates that, at least, the national contagion scenario has not occurred very frequently.[5] If a net currency drain is a prerequisite for such a scenario, then analysis of annual data suggests that it is likely to have occurred in only four periods—1878, 1893, 1908, and 1929–33—when currency increased relative to bank deposits concurrent with a decrease in total deposits (money). Further analysis suggests that nationwide bank contagion was probable in only two of these periods—1893 and 1929–33.[6] In 1893, nearly 500 banks failed, and between

[4]Indeed, a run on the banking system as a whole frequently is the only type of run analyzed in the academic literature. See, for example, Diamond and Dybvig (1983) whose article also considers only runs from bank deposits into consumption rather than currency. Such runs, however, effectively represent indirect redeposit runs and are not likely to lead to nationwide contagion or contraction in total bank deposits. Moreover, runs from deposits into consumption should increase income, which is inconsistent with both theory and observation.

[5]See Benston et al. (1986, chap. 2). Recent work by Schwartz (1987, 1988, forthcoming) suggests that major banking crises occurred even less frequently in foreign countries.

[6]Even in the 1929–33 period, regional rather than national contagion appears to have been the case until late 1932 when Nevada declared the first state bank holiday. See Willis and Chapman (1934, p. 9) and Wicker (1980).

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1929 and 1933 the total number of commercial banks declined by 40 percent from some 25,000 to 14,000.

In the other years, the story was quite different. From the end of the Civil War through 1919, there were only eight years besides 1893 in which more than 100 banks failed and none in which more than 200 banks failed. This record was compiled despite there being about 10,000 banks by 1895, 20,000 by 1905, and 30,000 (twice the current number of banks) by 1920. Indeed, the pre-1920 bank failure rate averaged below that for nonbanks, although the annual variance was higher. Losses to depositors in the aggregate were also small. The FDIC estimated that such losses averaged only 0.20 percent of total deposits at all banks annually, although individual depositors at failed institutions suffered considerably greater losses.

While the number of bank failures jumped sharply to near 600 a year in the 1920s, the failed banks were, for the most part, small agricultural banks in small towns in the plains states and had little impact on banks elsewhere or on the aggregate economy.[7] Similar to today, most of these failures reflected the severe problems in agriculture from a continuing sharp decline in commodity and land prices after an even sharper runup. Ninety percent of the banks that failed in this period had capital of less than $100,000, had loans and investments of less than $1 million, and were located in towns of fewer than 5,000 in population. Even after adjusting for the sixfold increase in prices since that period, these were Ma and Pa banks by any measure and were unlikely to have been diversified greatly or managed professionally.

This evidence suggests that much of the current fear of bank failures, at least in the United States, stems from the harrowing but rather unique experience of the Great Depression. Further analysis also indicates that the primary direction of causation was from problems in the real sector to problems in banking and not the other way around. That is, both bank runs and bank failures were a result of, not the cause of, aggregate economic contractions and hardships. This suggests that almost all bank runs were of the first two types, involving either direct or indirect redeposits. They did not develop into runs on the system. Nevertheless, because the accounts of the period before 1920 also tell of financial panics and of losses experi-

[7]See Benston et al. (1986, chap. 2), Ely (1988), and Kindleberger (1985).

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enced by shareholders, some depositors, and loan customers of the failed banks, the bank runs were not harmless. Nevertheless, few bank failures appear to have been directly attributed to runs.[8]

That the runs on individual banks or groups of banks failed, with only infrequent exception, to lead to runs on all banks, despite the absence of an FDIC, appears to be explained by the combined effect of greater market discipline on bank management and more timely closure of individual banks when they become economically insolvent. Both of these factors served to put banks in shape to weather most runs successfully. With all their deposits at risk, depositors had greater incentives to be concerned about the goings-on at their banks, to monitor their operations more carefully, and to exert discipline by either withdrawing their deposits or charging a higher interest rate for them if the banks' portfolios become too risky or their capital bases too small. The very threat of a run served as a powerful source of market discipline. As a consequence, at the turn of the century, capital ratios at banks were close to 25 percent and were effectively even higher as shareholders at national banks and some state banks were subject to double liability up to the initial par value of their shares. This led to an ex post settling up in case of losses at failed banks, which although not fully effective, did lead to assessments against shareholders of failed banks and the collection of at least some funds. The inability to pursue shareholders across state jurisdictions appears to have been a major barrier to more complete collections.

While imperfect, the threat of such assessments probably provided greater incentives for shareholders to monitor their banks and exert pressure on management to operate prudently to avoid failure, and served to buttress two other reasons for stockholder discipline. First, with higher capital ratios, shareholders had more of their own funds at stake, and second, the relatively swift closure of failed banks did not give them a free second or third chance to recoup their losses using depositors' funds.

In the absence of deposit insurance, knowledgeable lenders, including other banks, would not be likely to place their funds in banks they perceived to be economically insolvent. Indeed, they would act as quickly as possible to withdraw any remaining funds they might have on deposit at such a bank. Under these conditions, it did not take long for an insolvent bank to fail to meet a payment either by running out of currency or by not meeting its end-of-day debt to the clearinghouse. The bank was then forced to suspend

[8]See Gorton (1986) and Cagan (1965).

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operations and subject itself to examination by the authorities to determine whether it was illiquid but solvent (defined to include satisfying minimum capital requirements) or illiquid and insolvent (or solvent but with less than minimum required capital). A bank in the former group was permitted to reopen, but if in the latter category, the bank was required to recapitalize itself or be liquidated. Thus, liquidity served as an effective constraint to the continued operation of economically insolvent institutions.[9]

There is evidence that depositors and noteholders in the United States cared about the financial condition of their banks and carefully scrutinized bank balance sheets. In Minnesota before the Civil War, noteholders were able to differentiate sound from unsound banks from their balance sheets.[10] In its formative years, Citibank prospered in periods of general financial distress by maintaining higher than average capital ratios and providing depositors with a relatively safe haven.[11] Lastly, an analysis of balance sheets suggests that banks took less interest rate risk before the FDIC was established. Although some short-term loans were more or less automatically rolled over at maturity, they were repriced at the new market interest rate, making them equivalent to floating rate loans.[12]

The incentive structure leading to market discipline by private parties appears to have worked reasonably well. Many banks were able to survive runs when they occurred through the sale of liquid assets and/or by borrowing from others, including other banks that believed in their solvency. The recycling of funds from deposit gaining to deposit losing banks was generally undertaken through the leadership of the local clearinghouse, which had a strong and direct stake in the survival of its member banks. This facility acted to save solvent but illiquid banks and to prevent a run on one bank from setting off runs on its other members. In case of a run on one of its member banks, the clearinghouse examined the bank and, if it deter-

[9]See Kaufman (1986). The reasons national banks could be declared insolvent and a receiver appointed before 1930 are listed in Upham and Lamke (1934, p. 19).

[10]See Rolnick and Weber (1984, 1985).

[11]See Cleveland and Huertas (1985). Recent evidence suggests that Citibank may be returning to this strategy.

[12]Most early students of banking from Adam Smith on argued that commercial banks should concentrate their lending on short-term self-liquidating loans in order to be able to meet potential currency and deposit losses. This represented a "real bills" micro- (or bank management) strategy as opposed to a "real bills" macro- (or monetary policy) strategy. Adherence to the real bills bank management strategy also underlies the development of special banks for longer-term lending, such as for agriculture and residential housing, which would be financed by longer-term deposits. See Miller (1927), Fein (1986), and Merris and Wood (1985).

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mined the bank to be solvent, arranged for loans from other member banks. It also published the aggregate current balance sheet of its members to publicize their solvency and ability to satisfy all claims in full and on time.

In emergencies, banks would suspend converting deposits into currency or specie (and earlier currency into specie), but they continued to provide all other services, including making loans. At these times, the clearinghouse would often issue to member banks certificates on the clearinghouse to assist in the clearing process. On occasion, the clearinghouse also issued certificates in small denominations for its member banks to distribute to the public as a temporary replacement for currency. In this way, solvent banks were provided with time to work out their liquidity problems and avoid fire-sale insolvencies. Although the public may have been inconvenienced, the evidence strongly suggests that the clearinghouses were successful more often than they were not.[13] (Bank suspensions may be viewed as a less costly version of the so-called bank "holiday" declared by President Roosevelt in 1933 and, to a lesser extent, the governors of Ohio and Maryland in 1985, when the banks were closed temporarily for all business.)

Indeed, the very success of the clearinghouses appears to have been a major contributor to their decline, to the establishment of the Federal Reserve System, and, ironically, to the most costly failure of the banking system. Although the clearinghouses performed well, some of their actions, such as the distribution of certificates, were technically illegal though undertaken with the tacit approval of the authorities. This made those parties who preferred a completely legal and aboveboard process uneasy. At the same time, because the financial system did not work perfectly and runs occurred that, although not necessarily nationally contagious, were highly visible and did produce significant social and private costs, ways were sought to improve the structure. The result was the establishment of the Federal Reserve System to serve as a national clearinghouse. By having direct access to the reserves of all banks in the country, the system was intended to expedite the recycling of funds from banks gaining deposits to banks losing deposits as a result of runs. The Federal Reserve System was also given the power to issue legal certificates in the form of currency. The liquidity role of the clearinghouses at the time of crises was thereby transferred to the Fed, and the clearinghouses restricted their operations to the mechanics of clearing

[13]See, for example, Timberlake (1984), Gorton (1985), and Gorton and Mullineaux (1987).

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and paying interbank claims in the normal course of business. Contrary to expectations, the Fed, in part because it did not have the same direct incentives as the clearinghouse to maintain the solvency of the banks, failed to perform as well in dealing with the bank runs from 1929 through 1933 as the clearinghouses had in earlier panics.[14]

Importance of Incentive Structure

In the pre-FDIC environment described above, bank runs had both good and bad effects. The good effect was the strong market discipline exerted on bank management to steer a prudent course and to avoid the substantial penalties for failure. The bad effect was the potential for contagion and damage to other innocent banks, the financial system, and the national economy. The costs of any severe crisis, however infrequent, are great enough that the perceived immediate benefits from preventing a recurrence dominate, at least at the moment, the costs of distorting incentives that may have their unfortunate effects sometime in the future. Thus it was with the introduction of federal deposit insurance in 1934. The bad effects of bank runs were effectively removed. But, less visibly, the good effects were also significantly weakened. It is only in recent years, when the macroeconomic, institutional, and technological environments have combined to reduce the costs and increase the payoffs for risk taking, that the implications of the distortion in incentives have become generally visible.[15]

This is not to argue that market discipline has disappeared totally. The runs on the Continental Illinois Bank, First National Bank of Oklahoma, First Republic Bank of Dallas, First City National Bank of Houston, and other larger troubled banks would not have occurred if all depositors were absolutely certain that they were fully protected. Nor would one find different rates on the large certificates of deposit (CDs) of different banks.[16] Unfortunately, rather than viewing the runs as desirable vestiges of market discipline, the regulatory agencies and the public generally view them as undesirable precursors of contagious bank failures and panics and thus as events that the regulators should act to prevent.

Unfortunately, the consequences of the reduced market discipline that accompanied deposit insurance have become so costly in terms

[14]See Gorton (1986) and Friedman and Schwartz (1963). The Federal Reserve was also significantly less interested in the plight of nonmember banks than in that of member banks. This reduced its ability to serve as a national clearinghouse.

[15]See Benston et al. (1986) and Kane (1985, 1986a, 1986b).

[16]See Baer and Brewer (1986), Hannan and Hanwick (forthcoming), and James (1987a).

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of the dollar size of financially troubled institutions that the authorities have preferred to delay recognizing the costs in the hope that conditions will reverse themselves and the costs decline or disappear altogether. Many economically insolvent institutions have not been reorganized, many near-failed institutions have not been required to recapitalize, and the incentive structure has not changed. As a result, evidence indicates that the strategy of buying time has been, on the whole, counterproductive. Although it is not difficult to look back and point to insolvent or near-insolvent institutions that have improved their performance substantially when given additional time, this does not imply that similarly situated institutions can do so on average in the future. If one assumes that markets are efficient and impound the consensus of all available current information, there will be close to a 50-50 ex ante probability of an independent event improving or worsening a bank's performance.[17] Moreover, because the penalties for failure have been postponed and thereby weakened, insolvent banks allowed to remain open are likely to take greater risks than otherwise and the odds of success become even less favorable[18]

Thus, a policy of forbearance has served primarily to increase further the unbooked but very real losses accrued. In light of the large number of recent failures of depository institutions and the

[17]It might appear in retrospect that forbearance was successful for the thrift industry in the early 1980s, when most of the institutions were economically insolvent because of the effects of high interest rates on their greatly mismatched asset-deposit duration structures. Many of these institutions were solvent again by 1986 after interest rates had declined sharply. Indeed, this conclusion was reached in a study of forbearance policy by the General Accounting Office (1986b). Nevertheless, this conclusion is not necessarily warranted. The sharp decline in interest rates cannot be attributed to management skills. It would have occurred regardless of who was in charge of the associations at the time. If the insolvent institutions had been nationalized when they first became economically insolvent, the subsequent gain in net worth would have accrued to the Federal Savings and Loan Insurance Corporation (FSLIC) and the taxpayers. If instead they have been sold to new owners who had expected interest rates to decline as sharply as they actually did, the FSLIC would have obtained premiums equal in present value dollar magnitude to the subsequent gain. Under forbearance, the gain accrued to the previously insolvent managers/owners. But what if interest rates had not declined? The FSLIC would have suffered all the additional loss. In retrospect savings and loan managers were lucky, not skillful. Even in Las Vegas the customers win nearly one-half of the time, but not on average over time. Moreover, forbearance reduced the pressure on management/shareholders to change their strategy and to reduce their risk exposure. Thus, many associations have recently widened their asset-deposit duration mismatch again by returning to long-term fixed rate mortgages. This is likely to lead to a repeat of the interest rate risk game, but not necessarily with the same favorable outcome for the FSLIC. Other institutions found other ways to increase their bets on little or none of their own capital.

[18]Rigorous statements of the incentive structure for shareholders appear in Jensen and Meckling (1976) and Kane (1985).

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large associated (booked and unbooked) losses, which in early-1988 were estimated to exceed $50 billion for savings and loan associations alone, changes in public policy are urgently required to protect the safety and efficiency of the banking system and to reduce the cost to the insurance agencies directly and the U.S. Treasury and taxpayer indirectly. These changes need to correct the distortions in the incentive structure for risk taking introduced by the current structure of federal deposit insurance. Delay in reforming the system will only increase instability and the associated costs further.

Distortions from Federal Deposit Insurance

As recent research has clearly established, the present structure of federal deposit insurance changes the incentive structure of insured depositors in ways that will tend to increase the risk exposure of individual depository institutions, increase the likelihood of losses by the insurance agency, and decrease equitable treatment of institutions in the payment of insurance premiums.[19] It does so in three ways.

First, insurance of any type makes the insured somewhat less careful because the costs or penalties from loss are perceived to be less than in the absence of insurance. For banks, deposit insurance makes depositors, at least those with accounts that do not exceed the de jure $100,000 maximum amount of insurance, less careful about evaluating and monitoring the financial integrity of their banks and thereby reduces the degree of market discipline that they exert. The increase in account coverage from the original $2,500 in 1934 to the present $100,000 and, in particular, the sharp jump from $40,000 to $100,000 in 1980 have far exceeded the magnitude of the increase that could be justified by inflation to protect a constant definition of "small" depositor. Moreover, the increases in coverage have made it easier and cheaper for larger depositors to distribute their funds among different institutions in fully insured chunks with or without the help of brokers. What do depositors believe that banks paying up to 150 basis points above the national average on insured deposits are doing with their funds, and why should they care? As a result, insured banks are less restrained in increasing their risk exposure and, with the help of technological advances, risk prone banks can

[19]This literature is described in Benston et al. (1986) and in Kane (1985). Nor are these problems limited to the United States. See, for example, Dowd (1987).

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expand quickly by attracting funds from beyond local markets.[20] It is unlikely that in the absence of federal deposit insurance commercial banks with capital-asset ratios of only 6 percent and thrift institutions with ratios barely above zero could continue to operate.

Second, premiums for federal deposit insurance are a constant proportion of the total domestic deposits of the insured bank rather than proportional to the risk exposure of the institutions. Thus, risky institutions pay no more for the same insurance coverage than do less risky institutions. Because losses on risky opportunities are, on average, larger than losses on less risky opportunities, a flat rate premium structure results in inequitable treatment of insured banks. Moreover, because the expected revenue payoff on risky opportunities is greater than on less risky opportunities, while the cost of at least de jure insured funds to finance these ventures does not increase proportionately, the expected net income payoff will also be greater to the bank taking on more risky ventures. This provides a strong incentive for insured banks to increase their risk exposures. As few of the bigger bets are likely to pay off by definition, uninsured depositors and the insurance agency are likely to absorb greater losses from the greater risk exposures of the banks.

Third, because depositors need not be concerned about the safety of their funds up to the de jure maximum amount insured, federal deposit insurance permits banks that are economically insolvent but have not yet been declared legally insolvent and closed to attract funds not only to meet deposit losses but also to make additional loans and investments and to expand in size. Thus, the managers/owners of these institutions are able to continue in operation for an indefinite time and are likely to increase their losses further.[21] Indeed, they can use the newly attracted insured deposits to meet deposit outflows, interest on deposits, and even payrolls. Before federal deposit insurance, such operations were referred to as "Ponzi" schemes and viewed with disdain.

A recent study of all savings and loan associations that were merged with financial assistance or liquidated between 1982 and 1985 reported that the most important determinant of the cost to the FSLIC was the delay between the date that an institution became insolvent on the basis of generally accepted accounting practices (GAAP) and the date

[20]An interesting empirical documentation appears in Clair (1984). In addition, a number of credit union officials have noted that the unions increased their risk exposure after the introduction of federal share insurance in 1971. See National Credit Union Administration (1983).

[21]See Kane (1985, chap. 2; 1987a; 1987b), as well as Kaufman (1987a).

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that it was declared insolvent and closed by the FSLIC. The average delay was almost five months and cost the FSLIC about $300,000 per month per institution.[22] Similarly, Nina Easton (1986) reported that in 1984 it cost the FSLIC, on average, 15 percent of a failed association's assets to close or merge it. In 1987, this figure had risen to 30 percent. More recently, outright looting of thrift institutions has become a major problem, particularly in Texas and California.[23] In contrast, if institutions could be closed precisely at the instant that the market value of their net worth declined to zero, there would be no losses to depositors and therefore no losses either to the deposit insurance agency.[24]

The term "closed" is often misinterpreted, however. To the public, it conjures up images of physically boarding up an institution so that it disappears as a provider of banking services to the community. Financially, of course, closing a bank refers only to closing down the old shareholders and senior management unless they recapitalize the bank themselves. Recapitalization can also occur through sale or merger. Only if these alternatives fail will the bank be liquidated and closed physically. As a result, it is more accurate to use the term reorganized rather than closed.

More Timely Failure Intervention

Although the incentive-for-risk-taking problem arises from federal deposit insurance, abolition of federal insurance is not the solution. Some minimum federal deposit insurance, although not necessarily as much as $100,000 per account, is necessary to preserve the stability of the system as a whole and prevent depositors from running on the system given the current political and organizational structure, particularly the uncertain nature of Federal Reserve actions. Thus, reform of the insurance structure is the more promising approach.

Most recommendations to date have dealt with attempting to correct the first two problems identified above—the moral hazard from insurance per se and the increased risk incentive from flat premiums.[25] The proposed solutions go in two opposite directions. One direction focuses on increased regulatory and legislative discipline to limit an institution's potential risk exposure. The other direction

[22]See Barth et al. (1986).

[23]See Kaufman (1987b).

[24]See Bierwag and Kaufman (1983) and B. A. Bennett (1984).

[25]See, for example, Federal Deposit Insurance Corporation (1983), Federal Home Loan Bank Board (1983), Working Group of the Cabinet Council on Economic Affairs (1985), and the General Accounting Office (1986a).

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attempts to rely on market mechanisms to achieve the same result more efficiently.

To intensify the degree of market discipline exerted by depositors, many proposals favor rolling back the de jure $100,000 maximum deposit insurance, or at least not increasing it further either de facto or de jure. Advocates of such proposals note that for thrift institutions, where all deposits are in effect fully insured as almost all are in denominations of $100,000 or less, depositor market discipline is effectively nonexistent. To reduce the rewards to banks for risk taking, the market-oriented proposals also suggest scaling insurance premiums (or capital requirements) to a bank's risk exposure. But regardless of the academic merits of many of the reform suggestions, substantial opposition has developed to both calls for reductions in insurance coverage and for risk-based insurance premiums and capital requirements, casting doubt on rapid implementation of either set of proposals.[26]

Less attention has been focused on solutions to the third problem—the increased risk incentive from capital forbearance.[27] If institutions were recapitalized, sold, merged, or, as a last resort, liquidated at the point when the market value of their net worths reached zero, the reductions in market discipline from both shareholders and depositors would be greatly counteracted and, therefore, the incentives for risk taking by the institutions greatly reduced.[28] Any such closure/

[26]Much of the criticism focuses on the theoretical and practical difficulties of measuring risk accurately and developing appropriate premium scales. One of the earliest critics of these proposals was Kareken (1983). Kareken is also one of the first proponents of replacing federal deposit insurance by establishing uninsured "money market" bank affiliates, which would offer transaction deposits and invest only in near riskless securities. Other types of deposits would be offered by other affiliates of the bank or bank holding company, which could invest in risk securities and would not be federally insured. See Kareken (1986, pp. 39–46), Golembe and Mingo (1985), and Litan (1985). For criticism of these proposals, see Benston and Kaufman (forthcoming).

[27]Previous studies of the relationship of bank capital and deposit insurance include Pyle (1984, 1986).

[28]Because of problems of monitoring and the possibility of abrupt declines in the market value of an institution's net worth, it may be desirable to reorganize the institution before the market value of its net worth declines to zero, say at some small positive percentage of assets such as 2 or 3 percent. If any ex post losses are incurred, they should be borne pro rata by the federal deposit insurance agency on the de jure insured deposits and by the uninsured depositors. Alternatively, the reorganization/closure rule could be specified at some higher positive level of capital defined in nonmarket terms, for example, book value. Existing shareowners would be provided with an opportunity to recapitalize the bank at that point. If they failed to do so, the institution would be transferred to the regulators. It may reasonably be assumed that shareholders would have better information about the "true" market value of their institutions than do the regulators, and that they would be willing to provide additional capital if this value were positive and would walk away if it were negative. These alternative closure schemes are analyzed more carefully in Benston and Kaufman (forthcoming).

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reorganization rule would need to be both clearly enunciated and strictly enforced.

In addition, except for major fraud, losses to the deposit insurance agencies would be effectively eliminated because no losses would accrue to depositors. Thus, timely reorganization/closure intervention offers three further significant bonuses that may increase its attractiveness and thereby its adoption.

First, assuming the current structure of federal deposit insurance is kept intact, the effective elimination of losses from bank failures would reduce the need for insurance premiums in excess of those necessary to meet the operational expenses of the FDIC and FSLIC, including upgraded and more frequent monitoring of insured institutions and the development of accurate market value accounting systems. The authority to close banks should be transferred from the chartering agencies, which bear none of the dollar costs of delayed bank closures and frequently view official recognition of a failure as a blot on their records, to the insurance agency, which bears the full cost of such hits. The FDIC and the FSLIC may then be viewed as unusual insurance firms that can determine the magnitude and timing of their own losses through controlling the outcomes of the insured events.[29] Thus, to the extent that insurance premiums are required and intended to be actuarially fair to cover the insurance agencies' expected losses, they should be scaled to the difficulty of monitoring the activities of the bank and to existing public policy with respect to the timing of closure rather than to the riskiness of the particular activities or the bank. Activity risk and difficulty of monitoring may or may not be correlated.

The second benefit of instituting a timely reorganization policy is that the risk characteristics of banks would be unimportant. As long as the institutions are capable of playing only with their own equity funds, there would be little justification for regulating or legislating the nature of the activities in which banks may or may not engage solely on considerations of risk. Activity restrictions based on other considerations, such as excess concentration, conflicts of interest, or the undesirability of bringing the activity under the surveillance of bank regulators, would remain.

Third, in part because of the different dollar losses that may be associated with failures of different sized institutions, the present closure policy does not treat all failed banks equally. Uninsured depositors at large failed banks are reimbursed in full regardless of

[29]Reasons policy makers want to affect the timing of closures are discussed in Bierwag and Kaufman (1983).

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the bank's condition, while uninsured depositors at small failed banks frequently suffer losses related to the market value of a bank's assets. This policy has important competitive implications that place smaller banks at a disadvantage in attracting funds. By effectively eliminating depositor losses, timely failure resolution would permit more equal treatment of banks regardless of their size, location, or the nature of their business. No bank would be "too-large-to-fail."

As a result of the lower premium costs to banks, the greater freedom from regulation of bank risks and activities, and the greater equity in treating banks in similar financial predicaments similarly, timely reorganization may be more efficient and attract less opposition than either reductions in insurance coverage or risk sensitive premiums. The major opposition may be expected to center on (1) the application of a different, more stringent standard of insolvency for banks than for nonbanking firms, (2) the high cost of bank failure to the community, and (3) the difficulties in implementing market (current) value accounting and more frequent, almost on-line monitoring.

A nonbank firm is generally declared involuntarily bankrupt and remedies for creditors are started when it fails to meet a major scheduled payment on time and in full. Economic insolvency, per se, is not generally considered sufficient grounds for creditors to file for involuntary bankruptcy.[30] Thus, nonbank firms are permitted some time to continue to operate after they become economically insolvent. However, banks are different from nonbank firms in many ways, and more timely failure resolutions may be justified, in part, as payment for one of these differences, namely federal deposit insurance.

As noted earlier, unlike the debt of nonbank firms, much of the debt (the deposits) of banks contains a put option that is exercisable at par at any time at the discretion of the depositor (that is, most deposits are payable on demand), and much of the rest of bank debt is very short term. Thus, in the absence of deposit insurance, attempts by some depositors to withdraw their funds as a result of concern over the bank's solvency could result in immediate large-scale demands from other depositors that the bank could not accommodate. Economic insolvency for banks is therefore only one inevitable step short of the necessary condition for involuntary bankruptcy for nonbank firms. Action to declare a bank in this condition legally insolvent thus represents effectively equal treatment for the two types of firms.

Evidence that more timely closure reduces losses to creditors is quite strong. Until recently, the FDIC closed banks reasonably quickly after it became evident that the market value of their assets had

[30]See Weintraub and Resnick (1986).

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declined below that of their liabilities and, except in the case of major fraud, the insurance fund experienced minor if any losses.[31] In the absence of major fraud, the market values of banks are unlikely to decline abruptly overnight. Rather, they generally deteriorate slowly through time and can be monitored reasonably accurately. Through 1931, losses at failed and swiftly closed national banks were estimated to be about 10 cents on the dollar, as compared to 90 cents on the dollar at nonfinancial firms.[32] In a more recent study of defaulted corporate bonds, Altman and Nammacker (1985) estimated that during the 1974 to 1984 period the immediate loss in market values of affected bonds averaged about 60 percent. This is consistent with the loss ratios estimated by W. B. Hickman (1958) for the 1900 to 1943 period. These losses to creditors reflect the delay in initiating involuntary bankruptcy procedures for nonfinancial firms.

Costs of Bank Failures

The fear of the high cost of bank failures is based on a belief that one or more of the following occurs: (1) failed banks are liquidated and disappear; (2) bank services are unique and even a brief interruption is exceptionally harmful to the community; and (3) failure of one bank can set in motion a domino effect, tumbling other banks throughout the country as well as the payments system.[33] The weight of available evidence suggests that none of these fears is justified. Liquidation of failed banks or any other type of firm is generally limited to smaller firms. Larger firms are recapitalized, merged, or sold, although some time in bankruptcy may be required to work out a least-cost solution for larger institutions. The Banking Act of 1987 provided for the FDIC to establish temporary "bridge" banks to gain the time necessary to devise a longer term solution.[34] In addition, the

[31]See Benston et al. (1986, chap. 4).

[32]See Lawrence (1931). Losses tended to be greater between 1921 and 1930 among smaller banks, among banks that were liquidated, and among banks located in smaller cities (where the number of bank failures was greatest). During this period, losses to depositors at fully liquidated banks were about 50 percent, but these were the smaller banks. Depositors at 50 percent of the failed banks with loans and investment in excess of $1 million received 100 percent of their deposits, and 70 percent of affected depositors received 80 percent or more. See Upham and Lamke (1934, chap. 7).

[33]See Corrigan (1982) and Volcker (1986).

[34]Bridge or trusteeship banks were proposed by Kaufman (1985). On the other hand, strong political opposition has developed recently to regulators' declaring institutions insolvent (regardless of the definition used) that are located in an area where a large number of institutions are in financial difficulty. This appears to reflect a coalition of a number of interested parties including managers, who prefer to keep their positions; shareholders, who are hoping to recover their losses in ways described in the text;

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Federal Home Loan Bank Board operates failed savings and loan associations under a management consignment program until they can be sold or privately recapitalized.

But even liquidations do not necessarily indicate that a community is left without banking facilities. Between 1927 and mid-1932, near the height of the decline in the number of banks, less than 4 percent of the more than 10,000 cities in the United States with populations of 1,000 persons or more lost their only commercial bank, and only 17 of the nearly 1,000 cities with populations of 10,000 or more saw their sole bank close.[35] More recently, the number of savings and loan associations has declined by almost 50 percent between 1965 and 1985, from 6,200 to 3,200 institutions and by 30 percent in the five years since 1980 alone. Yet, there has been no major outcry by consumers about a loss of services. In large part, this can be explained by the sharp increase in the number of branches. The total number of savings and loan association offices more than doubled between 1965 and 1985, from 9,200 to 20,300, and declined by only 1,000 between 1980 and 1985.

There is an additional indirect societal cost to carrying insolvent institutions. In a market economy, failure is the market's way of indicating that customers are not satisfied with the products offered by the suppliers at the prices charged. Economically insolvent suppliers of banking services are kept in business only through subsidies from the bank authorities, and the welfare of the economy would be improved if these institutions were permitted to close and the resources were shifted elsewhere. Restrictions on exit are in effect also restrictions on entry, and they result in the misallocation of scarce resources.

Although banks at some earlier time may have produced unique liquidity and payments mechanism services by virtue of their charters, the availablity of which has been restricted at least since the Great Depression, the recent dramatic advances in computer and telecommunications technology have effectively permitted anyone with a large computer system to offer similar services anywhere on short notice. In addition, different types of chartered financial institutions have been permitted to offer services previously restricted to only one type of institution. As a result, surveys report that hardly any household now uses only one financial institution, fully 60 per-

debtors in default, who fear new managers would be harsher in restructuring their loans and who view the status quo as not much different from a debt moratorium; and provincialists, who fear loss of control to nonlocal outsiders. Very liberal forbearance provisions were mandated in the Banking Act of 1987.

[35]See "No Banking Adjustment in 68% of All Cities and Towns," *The Bankers Monthly* (October 1932): 585–88.

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cent use three or more, and more than 50 percent of small business firms use two or more institutions.[36] Larger firms may reasonably be expected to use even more. Thus, failure and even liquidation of a bank are highly unlikely to leave many customers stranded.[37]

This is not to argue that more timely reorganization is without costs or difficulties. Market value accounting is not easy, particularly for infrequently traded and nonfinancial assets.[38] Yet it underlies almost every proposal for reform. How is it possible for policy makers to evaluate the condition of a bank without an accurate statement of its accounts, or for management itself to direct the bank's operations systematically without such knowledge? To successfully map a plan of how to reach a target, one has to know where one is starting. Indeed, the use of book value accounting in banking was increased greatly by the bank regulators in the 1930s to deliberately mask the poor financial condition of the banks.[39] It continues to be used for this purpose today.[40] It is interesting to note that the increased reliance by banks on book value accounting corresponds with the decreased allegiance to the "real-bills" strategy for asset management.

One of the major misconceptions the public has about banking is that one needs to have faith in his bank and banker.[41] Nothing could be further from the truth! Faith belongs in churches; good assets belong in banks. If the value of a bank's assets are insufficient to meet its deposit liabilities in full and on time, those depositors who have the most faith will be the last to attempt to withdraw their funds and will suffer the largest losses. If a banker asks depositors to have faith in him, they should transfer their funds quickly. Market discipline requires depositor skepticism, not faith, as depositor faith in banks only permits banks to assume greater risk exposure than they

[36]See Whitehead (1982) and V. Bennett (1984).

[37]For studies that argue that bank loans are unique, see Bernanke (1983) and James (1987b). For earlier studies that argued communities can survive the loss of a bank, see Tussing (1967, 1968).

[38]See Benston et al. (1986, chap. 8), Kane (1985, chap. 4), Benston (1982), Johnson and Petterson (1984), White (1988), and Benson and Kaufman (forthcoming).

[39]See "Revision in Bank Examination Procedure and in Investment Securities Regulation of the Comptroller of the Currency," *Federal Reserve Bulletin* (July 1938): 563–66.

[40]When in the early 1980s, even book value accounting proved insufficient to show positive net worth for savings and loan associations, the Federal Home Loan Bank Board invented regulatory accounting practices (RAP), which included a wider range of intangible and imaginary assets, to avoid reorganizing insolvent institutions. Simliar practices occur in other federal agencies. See Bailey and McCoy (1987).

[41]For example, Gerald Corrigan (1987, p. 21), president of the Federal Reserve Bank of New York, has recently argued that "the business of banking and finance is essentially the business of public and mutual confidence."

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otherwise could. A recent study of failed savings and loan associations found that, contrary to expectations, the losses to the FSLIC from these institutions were greater the greater the institutions' net worth as measured by GAAP and the even less meaningful regulatory accounting practice (RAP), but losses to the FSLIC fell as net worth measured by market value rose.[42]

Sufficiently frequent and accurate monitoring is difficult. But it is becoming easier as bank managers themselves have discovered the need for quick on-line and accurate information. Indeed, it appears that the greater opposition to market value accounting comes not from the banks themselves but from the regulators. Nevertheless, serious problems do exist. By definition, fraud cannot be easily detected until after the event, and not all changes in financial conditions occur smoothly nor continuously. Statistically jump processes can cause net worth to become suddenly negative and impose losses on the insurance agency, even under perfect monitoring.

Conclusion

This paper has argued that more timely bank failure resolution, while neither easy nor costless, deserves greater immediate attention as a politically acceptable, an economically efficient, and an equitable solution for offsetting the undesirable incentive effects of deposit insurance; for reducing the frequency, costs, and disruptions of bank failures; and for substantially reducing the degree of regulation over the amount of capital and types of activities in which a bank or bank holding company may engage. In such an environment, bank runs are unlikely to invoke fears and panic in depositors or the public. Their good effects will outweigh their bad effects and help to make the banking system both safer and more efficient at minimum cost. The bad reputation of bank runs has reflected both bad public policy and undue concern over losses to bank owners and managers. Public policy needs to refocus attention away from concern over individual institution stability, which is little if at all more important than the stability of individual grocery stores or gas stations, to concern over the stability of the banking system, which is of critical importance and requires limited federal deposit insurance and/or intelligent central bank policy. To the extent these are in place, public policy toward banking can be greatly simplified. By confusing runs on individual banks and runs on the banking system, bank runs have been given a bad rap. Public policy can improve their reputation by per-

[42]See Brumbaugh (1986).

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mitting at least the threat of their occurrence for individual institutions. The challenge is not to eliminate bank runs, but to harness their power in such a way that the financial system will be both safer and more efficient.

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Bank Runs and Deposit Insurance Reform

Anna J. Schwartz

George Kaufman has prepared a splendid paper that helps orient thinking about the ways to make the financial system both safer and more efficient. His proposals are designed to offset undesirable incentive effects of deposit insurance by closing or reorganizing depository intermediaries before net worth turns negative and by basing the decision to close an institution on market value accounting. He suggests that implementing his two proposals will reduce the frequency, costs, and disruptions of bank failures, and reduce the degree of regulation concerning the amount of capital and types of activities in which a bank or holding company may engage. Bank runs might occur, but they would not become contagious. Concern, he further argues, should shift from keeping individual institutions stable to keeping the banking system stable. And for that objective what is required is limited federal deposit insurance and intelligent central bank policy.

I find Kaufman's views congenial. His formulation of the problems confronting the financial system and the solutions he offers are appealing. I shall limit my comments to selected aspects of the many contributions Kaufman has made in his paper: (1) an analysis of bank runs; (2) the historical record on bank runs; and (3) reforming deposit insurance.

Why Bank Runs?

Kaufman begins by discussing why bank runs have occurred and their effects, if any, on the community in which the banks were

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located, other banks, the financial system, and the macroeconomy. He draws a fundamental distinction between a bank run in which depositors shift from deposits to currency held outside the banking system, and a bank run in which depositors withdraw deposits from a bank they perceive to be unsound and either redeposit the currency at another bank they perceive to be sound or use the currency to buy a financial or real asset perceived to be safer than a bank deposit.

The effects of these alternative types of bank runs are substantially different. A flight to currency because all banks are regarded as unsafe is the essence of a banking panic, the consequences of which contract aggregate deposits and aggregate economic activity. A run on one bank that leads to redeposits in another bank will leave total deposits unchanged unless excess reserves are increased in response to the possibility of a run. If the losing bank cannot regain deposits quickly by sale of investment securities, help from the lender of last resort, or convincing depositors that its condition is unjustly challenged, some borrowers may be forced to obtain loans elsewhere. Kaufman regards this cost to be minor whether measured as private or social cost. Shifting from deposits in a bank run to securities regarded as safe will have effects that depend on the seller's disposition of the funds obtained from the securities sale. If he merely transfers the funds he obtained from the depositor's bank to his own bank, the effects are the same as a direct redeposit, although there may be significant side effects on yields of the securities that are in demand. If the seller of securities shares the depositor's suspicion of banks and holds the proceeds in currency, the effects are similar to those of a textbook banking panic.

Kaufman's presentation of alternative outcomes of a bank run is a signal contribution to our understanding of the functioning of the financial system. Most available analyses of panics take for granted a flight to currency if a bank run occurs. However, as Kaufman shows, if a bank run involves a flight from one institution to another perceived to be sound, the consequences of such a shift are no threat either to monetary aggregates or economic activity.

Charles Goodhart (n.d.) has recently disputed this conclusion, arguing that the costs to borrowers of having to switch the source of loans from a troubled institution to sound ones are not minor, as Kaufman has argued, but are as large as the loss of depositors' wealth that results from a shift to currency. Clearly, when borrowers have several sources of loans, being forced to give up one bank does not leave them stranded. In addition, the banks to which deposits have been transferred are surely eager to invest the funds. Why borrowers

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in good standing should not find a responsive lender in the circumstances is not obvious.

Another position that Goodhart adopts, in contrast to Kaufman, is that a central bank should support not only banks with liquidity problems but also those with solvency problems. I share Kaufman's view that a central bank does not "enhance social welfare by providing liquidity to an economically insolvent bank that will use the newly borrowed funds to pay off previous depositors."

Historical Record of Bank Runs

Kaufman notes that there were many years with bank runs from the Civil War until the establishment of federal desposit insurance. I have the impression that there are many years with a large number of bank failures but few years with runs. I recently read the sections in the annual reports of the U.S. Comptroller of the Currency from 1921 to 1929 that deal with national bank failures. In some years the Comptroller listed the causes of failures. In 1921, 34 banks failed, with runs on only 4. In 1922, 31 banks failed, with runs on only 3. In 1923, 52 banks failed with runs on only 3. In 1924, 138 banks failed, with runs on only 6. In 1925, 98 banks failed, and no runs are mentioned in accounting for causes of failure. In the remaining years of the decade there is no reference to runs in connection with bank failures.

Bank runs, moreover, are rarely contagious. As Kaufman notes, a true banking panic is likely to have occurred among all U.S. banks only in four periods—1878, 1892, 1908, and 1929–33—and among U.S. national banks only in two periods—1893 and and 1929–33. He attributes the difference between the large number of runs on individual banks or groups of banks and the infrequency of banking panics before deposit insurance to "the combined effect of greater market discipline on bank management and more timely closure of individual banks when they became economically insolvent."

There is an additional explanation, however, that can account for the infrequency of panics. Following Kaufman's lead, I recently tabulated the incidence of banking panics in 17 countries. The record covers nearly two centuries in the United States and Great Britain and nearly a century in a dozen other countries, with coverage between the two extremes in the three remaining countries. Before 1930 banking panics were uncommon. Among all 17 countries, the United States experienced the greatest number of years of panic—a total of 14 from 1790 to 1929. The runner-up was Great Britain with eight years of panic between 1793 and 1866. No British banking panic has

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occurred since then. The four banking panics that occurred in France were confined to the period between 1847 and 1882, and Italy's four panics came between 1891 and 1921. Austria had three banking panics, and eight other countries had one or two each. None are recorded in Canada, South Africa, India, or China before 1930, though banks occasionally failed in each of them.

A lesson that was learned by most countries by the end of the 19th century was how to prevent panics. Monetary authorities learned to demonstrate readiness to meet all demands by sound debtors for loans and by depositors for cash when banks became targets of suspicion by depositors. A banking panic could be averted by timely, predictable signals to market participants of institutional readiness to make available an augmented supply of funds. The source of funds might have been inflows from abroad—attracted by higher domestic than foreign interest rates—or emergency issues of domestic currency. The availability of the supply was sufficient to allay alarm, so that the funds might never have been drawn on. In some cases, orderly liquidation of troubled institutions, with a guarantee against loss by the liquidator, isolated the problem so that it did not spread to other institutions.

As noted, Britain had learned the lesson by 1866. The United States by contrast experienced a banking panic in 1873 because no institutional framework was immediately available to deal with a surge of demand for high-powered money by the public and banks. Belatedly, the crisis was alleviated by the issue against collateral of clearinghouse loan certificates for use in the settlement of clearing balances and by U.S. Treasury redemption with greenbacks of outstanding government debt.

Yet in 1893, issuing loan certificates did not cut short a banking panic. One possible explanation is that the individual banks with the bulk of bankers' deposits had reserve deficiencies even though aggregate reserves of the banks were adequate. A more persuasive explanation is that rumors of refusal of banks to convert deposits into cash incited the panic. A misinformed public can nullify the beneficial effects of actions designed to avert panic.

In 1907, the right actions to quell a panic were taken but too late to be effective. Assistance to troubled trust companies was granted slowly and without dramatic effect. The runs on the trust companies depleted the cash of the New York Clearing House banks, which were also shipping currency to interior banks and paying it out over their counters to their own frightened depositors. Had the Clearing House at this point issued loan certificates to enable banks to extend loans more freely to borrowers and also to prevent the weakening of

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particular banks with unfavorable clearinghouse balances, loss of confidence—displayed less by the public than by country banks (reminiscent of Continental Illinois' nervous interbank depositors)—might have been calmed. The banks, however, believed that an issue of clearinghouse loan certificates would cause restriction of payments. Belatedly, the New York Clearing House issued loan certificates and immediately restricted the convertibility of deposits into currency when country banks demanded currency for funds on deposit or on call in New York.

As is well known, it was the panic of 1907 that led to the far-reaching reform of the monetary system by the creation of the Federal Reserve System. The official lender of last resort had no institutional memory of the practices to forestall panic behavior. It did not act from 1930 to 1933 to stem the intensifying failure of banks with a steeply declining price level and the destruction of the payments system as panic followed panic.

Kaufman associates the Fed's 1930 to 1933 failure to cope with bank runs, as well as the clearinghouses had, in part to the absence of "the same direct incentives as the clearinghouses to maintain the solvency of the banks." As I have just noted, to me the failure was a result of no institutional memory at the Fed of how to prevent panic behavior. These may be complementary explanations.

Reforming Deposit Insurance

Kaufman gives a persuasive account of moral hazard and increased incentives for risk taking that are encouraged by deposit insurance and the flat premium the insured pay. He finds unappealing proposed reforms for the first two problems: increased regulation and legislation to limit risk exposure, or reliance on market mechanisms, by rolling back maximum deposit insurance and adopting risk-related premiums. He favors instead, as I indicated at the start, timely closure of troubled institutions. If banks were closed before their net worths became negative, there would be no losses to depositors, and no losses would be imposed on the insurance agencies. Premiums would be needed only to foot operational expenses of the agencies.

Kaufman points out that timely closure would also counteract reductions in market discipline on the part of shareholders due to existing capital forbearance. Under a regime of timely closure, shareholders would not undertake greater risk unless they believed the bank's capital was adequate. Hence regulation of bank risks and activities could be minimized.

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Kaufman discusses three sources of opposition to his proposal of timely closure. One is that a more stringent standard of insolvency would be applied to banks than is applied to nonbanking firms. For nonbank firms, economic insolvency does not immediately allow a debtor to request involuntary bankruptcy and to start remedies for creditors. He justifies timely failure resolution for banks as payment for their differences from nonbank firms, one of which is deposit insurance. In the absence of deposit insurance a solvency crisis based on market value accounting would "ignite the inevitable run." Timely closure is therefore a cheaper and more efficient remedy, because it reduces losses to creditors. However, I doubt that a run is inevitable. The record of failures before 1930 does not support such a conclusion.

Another possible source of opposition to timely closure is the belief that there is a high cost of bank failures in which the institutions are assumed to disappear, with harmful effects on the community as a result of the interruption of bank services, and with domino effects on other banks throughout the country and the payments system. Kaufman argues that liquidations of failed banks are rare, and even when they occur, a community is not necessarily left without banking facilities. But even if an only bank is closed, the effects are not much different from the closing of a community's only supermarket or movie house. He notes the misallocation of scarce resources if restrictions on exit exist and the availability of alternate financial services in current conditions when a bank is closed. Moreover, he denies that, given federal deposit insurance, bank failures will have contagious effects on solvent banks.

It is the final objection to timely closure that seems to Kaufman to have most weight, and that is that market value accounting is not easy for infrequently traded financial and nonfinancial assets. One alternative is to assess market value of a bank's net worth from transactions data for its stock. However, only a small number of the largest bank holding companies are traded publicly. The other approach is to assign values to individual assets and liabilities including off-balance-sheet accounts, goodwill, franchise value, and other intangibles. In fact, approximations to market value are available for most bank assets. Kaufman advocates research to improve market value accounting, but it is do-able even now if only the will is there to implement the change from book value accounting.

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A Public Choice Perspective of the Banking Act of 1933

William F. Shughart II

Against a background of an unprecedented number of commercial bank failures, the Banking Act of 1933 laid out the basic framework of modern banking regulation in the United States. Among its other provisions, the legislation established federal deposit insurance, reaffirmed the restrictions on branch banking imposed in 1927 by the McFadden Act, authorized the Federal Reserve to set ceilings on the interest rates payable on savings and time deposits at member banks, and prohibited the payment of interest on demand deposits. The Banking Act of 1933 also contained four provisions, commonly referred to as the Glass-Steagall Act, that effectively separated commercial and investment banking in the United States.[1] This was accomplished by prohibiting banks from engaging in the activities of underwriting, promoting, or selling securities either directly or through an affiliated brokerage firm. For their part, securities dealers were precluded from engaging in the business of deposit banking.

The Glass-Steagall Act is typically viewed as a public-spirited attempt by Congress to protect depositors against several problems alleged to arise when the activities of commercial and investment banking are combined. It is suggested that commercial bank security

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Cato Journal, Vol. 7, No. 3 (Winter 1988). Copyright © Cato Institute. All rights reserved.

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[1]I am well aware that the names of Glass and Steagall are more properly associated with legislation enacted in 1932 that allowed the Federal Reserve to use U.S. government securities as collateral for note issues. However, because "Glass-Steagall Act" is widely used in the literature to refer to the 1933 act, I have chosen to perpetuate the error in this paper.

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holdings raise concerns about the liquidity and, hence, soundness of banks' asset portfolios. This is because the relatively long terms to maturity of marketable securities may not match up well with the short-term nature of banks' deposit liabilities. Moreover, security holdings make banks' asset portfolios vulnerable to unanticipated capital losses caused by fluctuating market securities prices.

In addition, combining commercial and investment banking activities is thought to create a conflict of interest that may increase the riskiness of banks' loan portfolios. Of particular concern is that banks will make loans on preferential terms to customers who purchase securities underwritten by the bank or that such securities will be accepted as collateral for loans. In short, if banks both purchase securities for their own accounts and make loans to customers who use securities underwritten by banks as collateral, a downturn in the securities market will simultaneously lower the value of banks' asset portfolios and increase the likelihood of default on their loan portfolios. If a deposit outflow occurs at the same time, the banking system's ability to meet the cash demands of its customers will be impaired. This vulnerability to failure is thought to be greater for a combined commercial-investment banking system than for a system in which the two activities are kept separate.

Indeed, a large measure of the blame for the banking crisis of late 1932 and early 1933 was placed on the then fairly common practice of commercial banks underwriting the sale of securities through their bond departments or through separate but affiliated securities firms. Hearings on the bill that would eventually be enacted in 1933 produced testimony on a wide variety of abuses in the securities activities of commercial banks, including insider trading and outright fraud.[2] Senator Glass himself went so far as to claim that the activities of the securities affiliates of commercial banks were a major cause of the Great Depression: "These affiliates, I repeat, were the most unscrupulous contributors, next to the debauch of the New York Stock Exchange, to the financial catastrophe which visited this country and was mainly responsible for the depression under which we have been suffering since" (Kelly 1985, p. 53).

The public-interest explanation for the Glass-Steagall Act suggests that the members of the 73d Congress, which convened in March 1933, successfully set aside political considerations to impose a series

[2]Many of these horror stories surfaced during hearings before the Senate Banking and Commerce Committee (often referred to as the Pecora hearings, after the committee's counsel, Ferdinand Pecora). See Kennedy (1973, pp. 108–28) for a description of the practices of one of the committee's main targets, National City Bank and its securities affiliate, National City Company.

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of regulations that would restore safety and soundness to a banking system badly battered by the great crash and ensuing depression. In particular, the formal separation of commercial and investment banking required by the Glass-Steagall Act protected depositors by removing a risky asset from banks' portfolios and by eliminating the conflict of interest between the business of accepting deposits and making loans on the one hand and that of underwriting securities on the other.

The remainder of this paper examines these arguments in more detail. First, some historical background is provided through discussions of the growth of commercial banks' securities activities prior to 1933, the role of securities activities, if any, in precipitating the banking panic of 1929–33, and the main events in the legislative debate on the Glass-Steagall Act. Then comes a summary of the available evidence supporting an alternative, private-interest explanation for the legislation that separated commercial and investment banking. After that, some concluding remarks are presented.

Historical Background

Alleged securities market abuses by commercial banks and their affiliated brokerage firms played a large role in creating an environment conducive to the regulation of investment banking in the United States. The following is a brief review of the events leading up to the enactment in June 1933 of the bill cosponsored by Senator Glass and Representative Steagall.

Commercial Bank Securities Activities before 1933

The involvement of commercial banks in the securities business predates the 1920s. Indeed, one of the principal motives behind the establishment of a federal chartering option for banks by the National Banking Act (1863) was to create a convenient outlet for U.S. government securities by allowing member banks to issue notes (currency) against collateral in the form of Treasury bonds. These activities expanded rapidly during World War I and the years immediately thereafter when a large number of banks participated heavily in the distribution of Liberty Bonds issued to finance the war effort (Flannery 1985, pp. 67–68).

Although national banks were encouraged to deal in U.S. government securities, they were prohibited from underwriting corporate securities prior to the McFadden Act (1927). Many of the larger commercial banks were able to avoid this restriction, however, by establishing separate but affiliated securities firms to apply to private

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securities issues the experience they had gained in purchasing and selling Treasury bonds.[3] The creation of these securities affiliates boosted the involvement of commercial banks in the underwriting business during the 1920s, but the fact that federal regulations continued to restrict national banks from participating directly in such activities raised concerns about the banks' ability to compete effectively with state-chartered institutions that were not so constrained. These concerns were given weight by the development of a trend in which member banks either established state-chartered affiliated banks to deal in corporate securities or simply dropped out of the Federal Reserve System. The McFadden Act attempted to arrest this trend by "reaffirming" the authority of member banks to underwrite certain corporate securities. National banks' underwriting activities were limited initially by the Comptroller of the Currency to debt securities, but were later expanded to include certain equities as well (Flannery 1985, p. 68; Kelly 1985, pp. 42–43).

The establishment of securities affiliates and the lifting of some of the federal restrictions on underwriting activities by the McFadden Act enabled commercial banks to become prominent actors in the securities business by the end of the 1920s. In 1929, for example, 459 U.S. banks were underwriting securities directly through their bond departments and an additional 132 were sponsoring securities issues through an affiliate (Flannery 1985, p. 68). (See Table 1 for data on the growth of commercial banks' securities activities beginning in 1922.) By 1930, commercial banks were underwriting 54.4 percent of all new securities issues (Kennedy 1973, p. 212).

The increased involvement of commercial banks in underwriting activities was reflected to an extent in their own securities holdings. Table 2 reports on the composition of banks' securities portfolios from 1920 to 1933, showing a slight trend during the period toward larger holdings of "other" securities—obligations of domestic corporations, those issued by government agencies but not guaranteed by the United States, and foreign securities. Securities holdings were somewhat more important to member institutions of the Federal Reserve System. By the end of 1933, for instance, U.S. government bonds and other securities accounted for 21.41 percent and 15.5 percent, respectively, of member banks' total assets (Flannery 1985, p. 73).

[3]The owners of the bank and the securities affiliate were often the same. Kennedy (1973, p. 111) notes that the stock of National City Company was printed on the opposite side of the shares of its parent, National City Bank.

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TABLE 1

SECURITIES ACTIVITIES OF NATIONAL AND STATE BANKS, 1922–33

Year	National Banks		State Banks		Total
	Directly Engaged in Securities Business	Operating Securities Affiliates	Directly Engaged in Securities Business	Operating Securities Affiliates	
1922	62	10	197	8	277
1923	78	17	210	9	314
1924	97	26	236	13	372
1925	112	33	254	14	413
1926	128	45	274	17	464
1927	121	60	290	22	493
1928	150	69	310	32	561
1929	151	84	308	48	591
1930	126	105	260	75	566
1931	123	114	230	58	525
1932	109	104	209	53	475
1933	102	76	169	32	379

SOURCE: Peach (1975, p. 83).

Securities Affiliates and the Panic of 1929–33

The panic that swept the U.S. banking system following the stock market crash of October 1929 is well documented.[4] From 1929 through 1933, nearly 10,000 banks failed as depositors and bank owner-managers scrambled for liquidity; 4,000 banks closed their doors in 1933 alone. Considered in context, however, depositor losses were not of sufficient magnitude to threaten the survival of the entire commercial banking industry. Mergers and other forms of reorganization transferred the deposit liabilities of many failed banks to institutions on sounder footing. When this was not possible, depositors received some compensation from the liquidation of bank assets. Even at the height of the panic, therefore, only a little more than 2 percent of total commercial bank deposits were irretrievably lost. (Details concerning the effects of the crisis on banks and depositors are shown in Table 3.)

Hardest hit were small, state-chartered banks located away from major financial centers. Eighty-eight percent of the banks that suspended operations between 1921 and 1929, for example, had capital

[4]See, especially, Friedman and Schwartz (1963, pp. 299–419).

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TABLE 2

SECURITIES HOLDINGS OF COMMERCIAL BANKS AS PERCENTAGE OF TOTAL ASSETS, 1920–33

Year	U.S. Government Obligations	Obligations of State and Local Governments	Other Securities[a]
1920	7.66	1.99	8.03
1921	7.47	2.39	9.29
1922	8.72	2.60	9.90
1923	9.73	2.50	9.59
1924	8.50	2.76	10.05
1925	8.19	2.81	10.61
1926	7.77	3.03	10.72
1927	7.62	3.24	11.46
1928	8.01	3.25	12.24
1929	7.80	3.13	10.98
1930	7.60	3.29	11.55
1931	10.19	4.12	12.27
1932	13.50	4.97	12.37
1933	18.50	5.60	10.65

[a]Includes obligations of domestic corporations, those of government agencies not guaranteed by the United States, and foreign securities.
SOURCE: U.S. Department of Commerce (1975, p. 1021).

of less than $100,000 (Kelly 1985, p. 44).[5] This is the pattern that continued into the 1930s. The institutions that failed over the next four years were similarly smaller, on average, than those banks able to weather the storm (see Table 4).

What role did the securities activities of commercial banks play in the crisis of 1929–33? Although a definitive answer to this question is not possible, most of the available evidence points to the conclusion that factors other than securities dealings were more important in explaining the wave of bank failures that followed the crash. Despite the fact that congressional hearings on the subject generated much rhetoric on the harm to the safety and soundness of commercial banks allegedly caused by their investment banking activities, securities affiliates were identified as a proximate cause of failure only in the case of the Bank of the United States (Flannery 1985, p. 75). More-

[5]Burns (1974, p. 5) reports that over half the banks that failed between 1921 and 1929 were located in communities with populations of 2,500 or less and that more than 50 percent of the failures occurred in banks each having a capital stock of not more than $25,000.

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TABLE 3

BANK SUSPENSIONS, 1921–33

	Banks		Deposits		Depositors	
Year	No. of Suspensions	Failed Banks as Percent of All Banks	Deposits of Failed Banks ($ '000)	Deposits of Failed Banks as Percent of All Banks	Losses of Depositors ($ '000)	Losses of Depositors per $100 of All Banks' Deposits
1921	506	1.16	172,806	0.62	59,967	0.21
1922	366	1.15	91,182	0.30	38,223	0.13
1923	646	2.10	149,601	0.46	62,142	0.19
1924	775	2.58	210,150	0.61	79,381	0.23
1925	617	2.08	166,937	0.44	60,799	0.16
1926	975	3.28	260,153	0.66	83,066	0.21
1927	669	2.39	199,332	0.49	60,681	0.15
1928	498	1.84	142,386	0.34	43,813	0.10
1929	659	2.47	230,643	0.54	76,659	0.18
1930	1,350	5.29	837,096	2.01	237,359	0.57
1931	2,293	9.87	1,690,232	4.42	390,476	1.01
1932	1,453	6.94	706,187	2.43	168,302	0.57
1933	4,000	20.53	3,596,708	14.23	540,396	2.15

SOURCES: Flannery (1985, p. 77) and Friedman and Schwartz (1963, p. 438).

TABLE 4

AVERAGE SIZE OF FAILED BANKS VERSUS SURVIVING BANKS, 1929–33

Year	Deposits per Bank ($ '000)	
	Failed Banks	All Banks
1929	349.99	1,977.77
1930	620.07	2,165.08
1931	737.13	2,183.29
1932	486.60	1,903.38
1933	899.18	2,257.90

SOURCES: Friedman and Schwartz (1963, p. 438) and U.S. Department of Commerce (1975, pp. 1021–22).

over, although the collapse of the Bank of the United States in December 1930 was spectacular and contributed greatly to a weakening of public confidence in the banking system, it was due less to the operations of the bank's securities affiliate per se than to inept management and outright fraud (Kennedy 1973, pp. 1–5).

Systematic evidence in this regard has recently been reported by White (1986, p. 40). He notes that while 26.3 percent of all national banks failed between 1930 and 1933, "only 6.5% of the 62 banks which had affiliates in 1929 and 7.6% of the 145 banks which conducted large operations through their bond departments closed their doors." More importantly, using data for 1931, the year when the largest number of banks with securities affiliates failed, White (p. 41) finds that holding other things equal, the presence of an affiliate appears to have reduced the probability of bank failure.

Friedman and Schwartz (1963, p. 354) observe that "if there was any deterioration at all in the ex ante quality of loans and investments of banks, it must have been minor, to judge from the slowness with which it manifested itself." Simply put, banks would have failed at a much higher rate as the economy moved into depression if the composition of the asset and loan portfolios they had built up during the 1920s had been a major contributor to impaired safety and soundness. Further evidence against the culpability of securities affiliates in precipitating the pre-1933 banking crisis is that it was the smaller, rural institutions that accounted for the majority of bank failures throughout the 1920s and early 1930s, and virtually none of these were likely to have been much involved in underwriting activities.

There remains the question of whether the securities affiliates of the larger banks contributed in any way to the collapse of smaller

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institutions. In fact, Senator Carter Glass charged that "great banks in the money centers choked the portfolios of their correspondent banks from Maine to California with utterly worthless investment securities" (Flannery 1985, p. 72). "Country" (non money center) banks did indeed hold larger proportions of their assets in the form of private bonds, stocks, and securities than did the average member bank—19.50 percent of total assets at the end of 1929 versus 6.90 percent for banks located in New York City (Flannery 1985, p. 73). There is little to go on in assessing how important the quality (or lack thereof) of these securities was in explaining the failure of the smaller banks, however. A competing explanation deserving of at least as much consideration is that these small, rural banks were hurt severely by the effects of depression on agricultural activity. Falling farm prices caused the default rate on agricultural loans to be sufficiently high that many of these institutions would have failed in any case.

Legislative History of the Glass-Steagall Act

The separation of commercial and investment banking in the United States became a public policy issue soon after the October 1929 stock market crash—President Hoover called upon Congress to consider such a measure in his first State of the Union message in December 1929—but it would take almost three years of legislative maneuvering before the Glass-Steagall bill became law. In response to the president's request, the Senate passed a resolution in May 1930 directing the Committee on Banking and Currency to conduct a "complete survey" of the Federal Reserve System; one month later, Senator Glass introduced the first bill, which provided only for the regulation of commercial banks' securities affiliates and to which the origins of the Glass-Steagall Act can be traced (Kelly 1985, p. 43).

The hearings conducted under the auspices of the Senate's resolution (chaired by Glass himself) convened in early 1931 and produced testimony on a number of ways in which the operations of a securities affiliate could adversely affect the safety and soundness of its parent bank. Most of the problems identified by the subcommittee centered on the conflict of interest between the two businesses. It was basically alleged that the existence of a securities affiliate would induce the bank to make a variety of ill-advised managerial and investment decisions that it would not otherwise undertake, including lending money to the affiliate or its customers on preferential terms and purchasing securities from the affiliate to relieve it of excess holdings. For their part, securities affiliates were charged with such practices as being less cautious in their investment decisions

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because of their access to the parent bank's resources and with manipulating the market for the bank's own stock (Kelly 1985, pp. 46–47).

No specific legislative action followed the Senate hearings. In January 1932, though, Senator Glass introduced a new bill that would have separated commercial and investment banking by the device of prohibiting corporations from depositing funds in any institution except a chartered commercial bank. This proposal quickly foundered on nearly unanimous opposition, including that of the president of the Federal Reserve Bank of New York, who argued that the bill would essentially divorce "the banking system and the capital market" (Kelly 1985, p. 48). Glass then revised his bill introducing in April 1932 a measure that with some amendment, would eventually become the Glass-Steagall Act (Kelly 1985, pp. 48–49).

More hearings were held, but again no action was taken for the remainder of 1932. Increasing pressure for investment banking regulation was brought to bear, however, by revelations of stock-exchange abuses in testimony before another Senate subcommittee and by the deepening of the banking crisis.[6] The logjam was broken in March 1933 by the announcement of Winthrop Aldrich, the newly appointed chairman of Chase National Bank, that his bank would divest its securities affiliate so that Chase would no longer be tainted with "the spirit of speculation" (Kennedy 1973, p. 212). Aldrich went on to propose that the separation of commercial and investment banking be brought about by prohibiting securities dealers from accepting deposits (Kelly 1985, p. 53). The Aldrich plan was quickly incorporated into the new legislative initiative introduced by Senator Glass when the 73d Congress convened later that month. After a short debate in which a few changes in language were adopted, the bill was passed by the Senate in May. Its provisions were written into the House version of the bill sponsored by Representative Henry Steagall, and the Congress approved the conference report on June 13. President Roosevelt signed the measure into law three days later (Kelly 1985, p. 54).

Private Interests at Work

The conventional wisdom is that the Glass-Steagall Act resulted from action of a public-spirited Congress moving to restore safety and soundness to an industry badly weakened by commercial banks' involvement in the business of investment banking. As in the case of most public interest justifications for government intervention in

[6]The abuses of National City Bank and its securities affiliate, National City Company, were especially important in creating a climate favorable to regulation. See footnote 2.

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the private economy, the conventional wisdom about the Glass-Steagall Act cannot be taken seriously. The notion that depositors were the main beneficiaries of the purging of securities from commercial banks' asset portfolios overlooks the critical fact that most banks that had securities affiliates survived the wave of panic that swept the banking system during the early 1930s. Even if this were not true, however, the creation of federal deposit insurance by other provisions of the Banking Act of 1933 made the separation of commercial and investment banking redundant from the point of view of depositors. Simply put, if a customer's deposit is insured, the composition of his bank's asset portfolio becomes irrelevant to him; his account is protected even if a collapse in asset values causes the bank to fail.

The public interest argument that a separation of commercial and investment banking was needed to prevent an owner-manager from compromising his bank's liquidity by purchasing unnecessarily risky assets or making unnecessarily risky loans similarly fails on the historical evidence of the ability of institutions having securities affiliates to survive the 1933 panic. The argument also fails in terms of the incentives faced by commercial bank owner-managers to minimize downside risk. A profit maximizing commercial bank undertakes investments in such a way that the ex ante risk-adjusted rate of return on its asset portfolio is at a maximum. Such forces would induce the bank not to overinvest in any asset, including any securities it may have underwritten. The market value of equities can fall unexpectedly, but this is true of all other assets that the bank may hold. It is therefore disingenuous to accuse bankers of bad management after the fact when unanticipated events have caused the realized rate of return on a particular asset to be less than expected.

Clearly, the public interest argument does not hold up well under close scrutiny. What follows here is a brief description of an alternative explanation based on identifying whose interests were served by the separation of commercial and investment banking.

First, the legislation benefited brokerage firms by eliminating an important competitor from the business of underwriting, promoting, and selling securities. Some support for this proposition is provided by the fact that by 1930, the securities affiliates of commercial banks were sponsoring over 54 percent of all new securities issues (Kennedy 1973, p. 212). Second, commercial bankers were the beneficiaries of the Glass-Steagall regulations precluding securities dealers from entering the business of deposit banking. Given that successful brokerage houses develop experience in making loans by managing their customers' margin accounts, commercial bankers may have been concerned with the possibility that securities firms not affiliated

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with commercial banks could use their expertise to provide other cash-management services, including checkable deposits, blurring the distinction between stock brokering and banking. Under this interpretation, the Glass-Steagall Act represented an early attempt by commercial bankers to block the kinds of innovations in the financial services industry that ultimately did appear in the 1970s and that provided the impetus for recent deregulation legislation.

In addition to the private interests identified above, the Glass-Steagall Act may also have provided an important benefit to the U.S. Treasury. By purging private securities from banks' asset portfolios, the legislation helped expand the market for U.S. government securities by eliminating a competitor to the Treasury for banks' loanable funds.

The Interests of Commercial and Investment Bankers

One way of interpreting the Glass-Steagall Act is in terms of a government-sponsored market-sharing agreement for the financial services industry. Under the regulations enacted in 1933, commercial bankers would specialize in the business of accepting deposits and making loans, and investment bankers would specialize in the business of underwriting, promoting, and selling securities. Simply put, the Glass-Steagall Act erected barriers that prevented any direct competition between commercial and investment banking. Such an agreement on how a market is to be divided is a classic example of a dimension of collusion through which the members of a cartel can maximize their joint profits.

Some support for explaining the Glass-Steagall Act as a cartel market-sharing agreement is given by the fact that the new regulations allowed bankers one year to choose between the two businesses (Kennedy 1973, p. 213). Those institutions having a comparative advantage in accepting deposits and making loans thereby had an opportunity to divest their securities affiliates and become members in good standing of the commercial banking industry. Similarly, the grace period allowed those institutions having a comparative advantage in underwriting securities to choose to become investment banking firms by dropping out of the business of accepting deposits. Thus, the Glass-Steagall Act did not require any institution to give up what it thought to be its most profitable line of business.

The legislation enacted in 1933 gave the force of law to a division of the financial services market that benefited both commercial and investment-banking interests. Investment bankers benefited by having an important competitor eliminated from the securities under-

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writing business.[7] As mentioned earlier, this was of consequence because securities affiliates of commercial banks were sponsoring over half of all new securities issues by 1933 (Kennedy 1973, p. 212). The emerging success of commercial banks as securities dealers has been traced by White (1986) to significant complementarities in the production of financial services. Economies of scope allowed banks to become "the contemporary equivalents of 'discount brokers' with fees of about one-quarter the New York brokerage commission" (White 1986, p. 36).

The hypothesis that the Glass-Steagall separation decree solely benefited investment bankers at the expense of commercial bankers has been put forth by Macey (1984). His argument is based in part on a 1971 Supreme Court decision striking down a ruling by the Comptroller of the Currency that authorized commercial banks to operate mutual funds.[8] Specifically, Macey (1984, p. 17) reports that Justice John Marshall Harlan's dissenting opinion recognized that in granting standing to the Investment Company Institute's challenge to the Comptroller's decision, the Court was in effect concluding that Congress intended to protect investment bankers against competition from commercial bankers.

Controversy over what constitutes a "security" has plagued efforts to enforce the Glass-Steagall Act since its passage.[9] This is because borrowing funds from a commercial bank and selling stock are interchangeable methods for firms to raise capital. That the Glass-Steagall Act created a dichotomy between two businesses that is more apparent than real provides further support for the legislation's private interest basis (Macey 1984, p. 7). There was also a substantial cost imposed on investment bankers (and a corresponding benefit to commercial bankers) associated with the Glass-Steagall Act's provision excluding them from the business of accepting deposits, however.[10]

[7]The protection against new competition would soon be made more secure by the Securities Act of 1933 and the Securities Exchange Act of 1934.

[8]Investment Co. Institute v. Camp, 401 U.S. 617 (1971).

[9]In contrast to *Camp*, the decision rendered in Board of Governors v. Investment Co., 450 U.S. 46 (1981) held that the Glass-Steagall Act does not prohibit a commercial bank or its affiliate from offering a closed-end mutual fund. The "subtle hazards" that arise when commercial and investment banking are combined have been held to prohibit banks from underwriting commercial paper, but not to prevent a commercial bank affiliate from engaging in securities brokerage (Securities Industry Ass'n v. Board of Governors, 104 S.Ct. 2979, 3003 (1984)). See Fischel, Rosenfield, and Stillman (1986).

[10]Evidence of the profitability of deposit banking is provided by the ability of state-chartered banks to survive despite being taxed out of the business of issuing notes by the National Banking Act. See Perkins (1971, p. 488).

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The suggestion that commercial banks may also have benefited from the Glass-Steagall Act is borne out by recent events leading to the banking deregulation initiatives of the early 1980s. Deregulation was precipitated by an innovative cash management service offered to the market by a brokerage firm, Merrill Lynch, which allowed customers to withdraw funds deposited in securities accounts on demand using a financial instrument identical to a bank check in all respects except name. This innovation was soon copied by other brokers, putting securities firms in direct competition with commercial banks for short-term deposit liabilities. Moreover, because the securities industry was not constrained by regulations limiting either their entry into other lines of business (insurance, real estate, and so on) or the interest rates they could pay on customers' accounts, commercial banks were increasingly at a competitive disadvantage. The resulting shift of deposits from banks to brokerage firms created calls for reform that were resolved ultimately in the form of deregulation of commercial banking.

Thus, the Glass-Steagall Act may have represented an early attempt by commercial bankers to forestall the kinds of innovations in the financial services industry that in recent years have caused a breakdown of their market-sharing agreement with investment banking firms. Commercial bankers may have been concerned in 1933 with the possibility that unaffiliated securities firms could use their cash management expertise to offer financial services that would compete directly with commercial bank deposits. The elimination of this potential competition would have been particularly important in view of the provisions of the Banking Act of 1933 authorizing the Federal Reserve to limit the interest rates payable on deposits at member banks.

In this regard it is noteworthy that in 1933,

> [m]any . . . affiliates were . . . in process of liquidation, or had been previously dissolved, either because final passage of the Glass bill was anticipated or because banks welcomed the opportunity to rid themselves of affiliates which they had thought necessary or highly desirable during the twenties (Peach 1975, p. 158).

The data in Table 1 indeed suggest that commercial banks were leaving the securities business prior to the passage of the Glass-Steagall Act—more than 200 institutions did so between 1929 and 1933. The implication is that the cost to commercial banks of giving up their underwriting activities was less than the benefit gained by eliminating a potential competitor from the business of accepting

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deposits.[11] This observation helps explain Winthrop Aldrich's announcement of his willingness to divest Chase National Bank's securities affiliate, a decision that lent crucial support to the bill introduced by Senator Glass.[12]

Evidence that can be gathered from congressional hearings concerning the relative benefits and costs of the Glass-Steagall Act to commercial and investment bankers is mixed. Eight witnesses testified in favor of a complete separation of the two businesses during the 1931 Senate hearings conducted under the auspices of the resolution passed in May 1930. Of these, four were members or former members of government regulatory agencies, two were bankers from the Midwest, one represented a New York commercial bank that had not engaged in investment banking activities, and one was a Harvard economist. Most of the sixteen witnesses who opposed the separation were representatives of large commercial banks (Perkins 1971, pp. 506–10). Both the Investment Bankers Association of America and the American Bankers Association issued statements in late1932 and early 1933 criticizing the Glass proposal (Perkins 1971, pp. 521–22). It is difficult to tell, however, how much of this opposition was to the idea of separation per se rather than to specific elements of the plan as it then stood, such as the length of the grace period the various institutions would be given to comply with the separation decree.

By April 1933, the American Bankers Association had apparently been won over. The Association's Economic Policy Commission issued a report recommending immediate enactment of the Glass bill (Burns 1974, p. 82). It is important to note, however, that on the eve of the bill's final passage, the controversy over the provision requiring separation of commercial and investment banking had subsided, with most of the debate now focusing on the issue of deposit insurance and on the nature and extent of the increased regulatory powers to be given to the Federal Reserve System, especially as they related to state-chartered institutions.[13] Thus, the many and diverse

[11]Perkins (1971, p. 522) claims that by 1933 the investment banking business was "dormant."

[12]Fear of a new congressional investigation into the practices of other bank affiliates may also have played a role (Perkins 1971, p. 523).

[13]Indeed, deposit insurance, the legislative brainchild of Rep. Henry B. Steagall, may have been the most controversial provision of the Banking Act of 1933. President Roosevelt's opposition to the idea nearly killed the entire bill. See Golembe (1960) for details. Benston (1982) highlights the role of several provisions of the Banking Act of 1933 in providing a "horse-trading" explanation for the bill's passage. Specifically, he cites deposit insurance as a victory for small unit banks, the prohibition of interest payments on demand deposits as a compensating payoff to large banks, and the Glass-Steagall separation decree as the act's main benefit for securities dealers.

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motives that were ultimately responsible for the passage of the separation decree itself cannot be completely disentangled.

What is clear, though, is that the Glass-Steagall Act did provide significant private benefits to both the commercial and investment banking industries. As Perkins (1971, pp. 524–25) has put it,

> Perhaps in the end the bankers themselves . . . were relieved to have the assurance that no competitive pressures would be allowed to emerge in the future, as they had in the past. . . . Certainly, the older investment banking firms welcomed relief from aggressive commercial bank competitors. Hereafter, competition would be contained within the narrow functional banking fields of commercial and investment banking.

The Treasury's Interests

Whether intentional or not, the U.S. Treasury also obtained a substantial benefit from the Glass-Steagall Act. By 1940, as Friedman and Schwartz (1963, p. 452) observe, 70 percent of commercial bank investments were in the form of U.S. government securities. Part of the explanation for the sharp increase in commercial banks' holdings of Treasury obligations during the period immediately following the passage of the Glass-Steagall Act lies in the continuation of a trend, dating back to as early as 1929, toward greater liquidity in banks' asset portfolios. Less than 40 percent of banks' investments in 1929 were in the form of U.S. government securities, and nearly three-quarters of these were relatively long-term Treasury bonds. By 1933, U.S. government securities accounted for over 50 percent of investments and the average term to maturity of Treasury obligations held by banks had fallen by nearly one-half. This shift in the composition of banks' asset portfolios was a rational response to the increased cash demands of depositors. Indeed, "the banks that survived understandably placed far greater weight on liquidity than the banks in existence in 1929" (Friedman and Schwartz 1963, p. 449).

The increased demand for liquidity on the part of commercial banks is also reflected in Table 5 (basically a continuation of the data in Table 2), which shows the securities holdings of banks as a percentage of total assets from 1934 to 1940. In 1933, banks held 18.5 percent of their assets in the form of U.S. government securities. This figure jumped to nearly 23 percent in 1934, rose again in both 1935 and 1936, and then stabilized at around 25 percent for the remainder of the decade.[14] A portion, but certainly not all, of the increase in

[14]The decline in U.S. government securities holdings between 1936 and 1937 can be partly explained as a reaction by member banks to the fact that the Federal Reserve's Board of Governors doubled reserve requirements during this period.

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TABLE 5

SECURITIES HOLDINGS OF COMMERCIAL BANKS AS PERCENTAGE OF TOTAL ASSETS, 1934–40

Year	U.S. Government Obligations	Obligations of State and Local Governments	Other Securities
1934	22.95	5.25	9.49
1935	26.13	5.50	8.73
1936	27.61	5.17	8.75
1937	25.63	4.92	8.36
1938	25.06	4.95	7.56
1939	25.63	5.35	6.48
1940	24.48	5.32	5.29

SOURCE: U.S. Department of Commerce (1975, p. 1021).

commercial banks' U.S. government securities holdings came at the expense of "other" securities, which declined steadily as a proportion of total assets throughout the period.

A shift in the liquidity preferences of banks no doubt accounts for most of the shift in the composition of asset portfolios that began in 1929.[15] However, it seems reasonable to assign to the Glass-Steagall Act at least some of the responsibility for the increase in the banking system's U.S. government securities holdings between 1933 and 1934. Simply put, the 5 percentage point rise in commercial banks' purchases of Treasury obligations, which equaled the largest single-year jump between 1929 and 1940, may have been driven in part by a need to replace the private securities purged from their portfolios by the new banking regulations. As such, the Glass-Steagall Act caused an increase in the demand for Treasury securities. Although the bill would probably not have been enacted had its sole purpose been to eliminate a competitor to the Treasury for banks' investment funds, such considerations may have played a role in pushing through the separation of commercial and investment banking.

In sum, the conventional wisdom that the separation of commercial and investment banking served the public interest does not hold up well under close scrutiny. There were private interests at work, and these were successful in giving the force of law to a market-sharing agreement in the financial services industry that virtually eliminated competition between commercial and investment banks for roughly

[15]This is the major factor identified by Friedman and Schwartz (1963, p. 453). They discount the importance of changes in the demand for or supply of assets.

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40 years. That the distinction between commercial and investment banking is now in the process of breaking down may be taken by some as evidence that the Glass-Steagall Act has outlived its usefulness and should therefore be repealed. The evidence presented herein suggests, however, that the Glass-Steagall bill should never have been enacted in the first place.

Conclusion

This paper has argued that the private interests of commercial and investment bankers were the driving force behind the regulations imposed on the financial services industry by the Glass-Steagall Act. The principal alternative justification for the law, which suggests that the separation of commercial and investment banking was necessary to protect the public against the speculative activities of commercial banks' securities affiliates, is particularly ironic in view of the creation of federal deposit insurance by separate provisions of the Banking Act of 1933. Such insurance made the equity-ownership and underwriting ban redundant from the point of view of depositors. Thus, the Glass-Steagall Act generates no apparent benefits for depositors but it clearly entails costs. Allowing commercial banks to purchase equities would simply give them an extra degree of freedom, an additional asset over which to spread downside risk. Prohibiting them from doing so precludes commercial banks from holding an efficient asset portfolio and this may have raised, not lowered, the probability of bank failure.[16]

The development of futures markets has further eroded the public interest basis for regulating the activities of commercial and investment banks. Futures and options contracts are now available on a number of equity market indexes, as well as on a wide range of financial assets, including Treasury securities, commercial paper, and foreign currencies. Such contracts allow asset holders to shift downside risk to other market participants, creating a hedge against unanticipated reductions in the values of these assets. Empirical evidence suggests that even the losses from equity underwriting can be reduced to a relatively low level by participation in the options market (Giddy 1985). Thus, the argument that securities are inherently more risky than other assets that commercial banks may hold is simply not valid.[17] There is no reason to believe that allowing

[16]This point is also made by Macey (1984, p. 12). Prohibiting banks from purchasing securities would lower the probability of failure only if all stocks are inherently more risky than all other assets banks may hold. This is clearly not the case.

[17]The opportunity for self-insurance provided by futures markets also raises questions about the continued need for federal deposit protection.

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commercial banks to deal in securities—or allowing investment banks to accept deposits—would materially increase the riskiness of either type of institution. More importantly, however, breaking down the barrier between commercial and investment banking would further increase the by now widely apparent benefits that would accrue to depositors through deregulation of the financial services industry.

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New Deal Monetary Legislation for the Welfare of the Government

Richard H. Timberlake

William F. Shughart II's paper discusses the public choice aspects of the Banking Act of 1933, which was passed by Congress on June 16 of that year.

This act had its origins in the second of two bills proposed by Sen. Carter Glass of Virginia and Rep. Henry B. Steagall of Alabama to regulate commercial banking and the Federal Reserve System. The first bill, passed on February 27, 1932, and called the Glass-Steagall Act, allowed the Federal Reserve Banks to use government securities as collateral for the issue of Federal Reserve notes. Because this legislation was named the Glass-Steagall Act, the second act could not be identically labeled, so it was simply titled the Banking Act of 1933 (a more formal, if not better, choice than, say, the Carter-Henry Act, based on their first names).

Besides separating commercial banking from investment banking (the provision Shughart analyzes), the Banking Act of 1933 also granted additional powers to the Federal Reserve Board and Federal Reserve Banks to oversee loans and investments of member banks. The idea was to discourage speculative trading activity in securities, real estate, and commodities. The act also contained several other provisions, including prohibition of interest on demand deposits and Federal Reserve authority to set ceiling rates of interest on time deposits.

Shughart notes immediately the security overdose in the 1933 act: If deposit insurance was a general requirement for banks—including as it subsequently did 98.4 percent of all deposit accounts—the separation of investment banking from commercial banking was an unnecessary flourish as far as the safety of depositors was concerned. They were already well protected. Shughart then looks at the two

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special interest groups that might have benefited from the cartel-like separation of the two banking functions. He finds that commercial banks probably benefited more than investment banks. The evidence for this conclusion is the current direction taken by deregulation; that is, investment houses and others have again gone into the manufacture of demand deposits.

Shughart also notes that the U.S. Treasury received substantial benefits from the 1933 Act. The act encouraged banks to invest in U.S. government securities, both because of the conditioned need for liquidity the banks felt after the recent liquidity debacle, and because of the purging of private securities from the banks' portfolios in accordance with the provisions of the new act. For the nonbank public, ceiling rates of interest on time deposits and zero interest rates on demand deposits also tended to make commercial bank deposits appear less attractive than, say, holding U.S. government securities. Interest rate ceilings on bank deposits, therefore, had the effect of holding down market interest rates on government securities.

Shughart's paper has persuasive arguments. By picking up this one bit of legislation and showing that it was written and passed to further the special interests of at least one of two private groups—or both—in alliance with the government, his investigation opens the door for the same question about other "critical" legislation passed at that time. What follows is the legislative pattern that developed between 1932 and 1934—the years during which congressional acts regulating the monetary, banking, and financial services industry abounded.

The legislation that began the federal government's monetary and banking activities during the early 1930s was the act to form the Reconstruction Finance Corporation (RFC), passed on January 22, 1932. This government corporation was capitalized by the U.S. Treasury with $500 million from general taxpayer revenues. The RFC could then issue its own bonds, debentures, and notes to raise an additional $1,500 million. Its mission was to lend to banks, other corporations, and government agencies that could not get help from conventional sources (Harris 1933, pp. 685–87; White 1935, pp. 697–702).

In the pre-RFC era the most "conventional" source, of course, had been the 12 Federal Reserve Banks. They were the touted lenders of last resort, the legalized descendants from the "extralegal" and illegal clearinghouse associations. However, the Federal Reserve Banks had turned out to be lenders of next-to-last resort. Their managers' concept of "eligibility" for the collateral paper on which they made loans to banks had proven to be procyclical; it had effectively

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sterilized the vast amount of lending power that the Federal Reserve Banks had at their disposal throughout the early 1930s.

Congress and the administration, unable to persuade the Fed to promote an extensive and consistent lending policy either for the banks or for the government, decided to create an even more fundamental lender of last resort. The RFC was that institution. After two and three-quarter years of operation (up to November 1, 1934), the RFC had loaned $6.3 billion. Banks received 41 percent of total loans made, and government agencies and state governments came next, with a combined 27 percent (White, p. 699).

The absurdity of this burgeoning of institutions is immediately apparent. Why was an RFC necessary to make loans to needy banks when the elaborate Federal Reserve System has been put in place 20 years earlier to do just that? The RFC, at best, had no net leverage on the monetary system. It could not create monetary base materials. It was similar to a commercial finance corporation in that it borrowed from the securities market after its first endowment of taxpayers' money, and then made loans with the proceeds. True, it made loans to commercial banks when the Federal Reserve Banks would not. It could do so because it was allowed to broaden the eligibility concept to include assets that, although not eligible where the Fed was concerned, were sound and acceptable backing for RFC loans (Harris, p. 686; White, p. 699).

The Glass-Steagall Act of 1932 made an attempt to go in the same direction as the RFC. It relaxed collateral security requirements for member bank discounts at Federal Reserve Banks. It also allowed Fed Banks to use government securities as collateral for the issue of Federal Reserve notes, thereby establishing a formal basis for the government seigniorage operations that were to occur within the next two years. By the end of 1933, as a matter of fact, eligible paper plus government security holdings of member banks were over $7 billion, or 10 times the amount of Federal Reserve lending to member banks at that time (White, p. 703).

The Emergency Banking Act was signed into law on March 9, 1933. It allowed President Roosevelt to declare a banking holiday. More important, it gave the executive branch through the Treasury Department the power to call in all gold coin and gold certificates owned domestically, thereby setting the stage for further seigniorage operations (White, p. 705).

In May 1933, Congress passed the Thomas amendment to the Agricultural Adjustment Act. This "inflation bill," as it was dubbed, allowed the Federal Reserve Banks to buy $3 billion more in government securities on the basis of which they could issue an equiv-

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alent amount of new Federal Reserve notes. In addition, it gave the president the power to reduce the gold content of the gold dollar by as much as 60 percent (White, pp. 709–10).

Next, on June 5, 1933, Congress passed the act that abrogated all gold clauses in contracts, including those made by the government in the bonds financing the Liberty and Victory loans (White, pp. 712–13). The Banking Act of 1933 was then passed on June 16. This act was advertised as antispeculative, but it pointedly exempted all security issues of the federal government, state governments, municipalities, and government agencies from the class of investment securities denied to commercial banks (White, p. 718).

The federal government now had the path cleared for expropriating a large fraction of the monetary system's real gold stock. By his authority under the Gold Reserve Act passed January 30, 1934, President Roosevelt raised the price of gold to $35.00 per ounce. He then called in all the gold to the U.S. Treasury, but paid for it at the old price of $20.67 per ounce (White, pp. 720–21). Because all gold clauses had been nullified, the government did not have to share its seigniorage profits of $2.8 billion with private speculators and other "malefactors of great wealth." Two billion dollars of this total was put into the Exchange Stabilization Fund to fix exchange rates, but was used to buy government securities until the money was needed for exchange-control purposes.

Finally, the Silver Purchase Act of 1934 concluded the government's extensive housekeeping revenue-accruing operations. By this act, the Treasury could buy silver at $0.50 per ounce or less, and it could then issue silver certificates as though its silver was worth $1.29 per ounce—the historic fixed price for monetization of silver. During the next two years, the Treasury realized silver seigniorage worth over $300 million (Friedman and Schwartz, pp. 465–70).

All of these congressional acts taken together suggest a pattern of incentives and strategies that is consistent. First, the evil that provoked the Great Contraction and ensuing depression was unchecked speculation. The evidence for this opinion was the dramatic stock market boom. The need, therefore, was to rein in speculation through the Federal Reserve System's imposition of its version of the "moral" use of credit. Unfortunately, in depriving the Speculative Devil of his sustenance, the Federal Reserve also starved the innocent banking institutions it was supposed to nourish. In doing so, it likewise deprived the government of its ability to generate tax revenues.

In the presence of a Federal Reserve System that had so bungled, government policy was to intervene in the financial markets to ensure that its own inflow of resources was secure. By this time, tax revenues

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were not manipulable. Seigniorage from gold and silver expropriation, however, provided at least a one-time bonanza. The government's "profit" of $2.8 billion from the revaluation of the gold was, by one pen-stroke, almost the equivalent of one year's ordinary tax revenues. That same federal government almost 100 years earlier, in 1835–37, had returned its fiscal surplus to the states. The government of 1934 legislated the revenue into existence and kept all of the proceeds for itself.

The second source of government revenue, especially on account of the cyclical dearth of taxes, was the sale of U.S. Treasury (and other government agency) securities. Almost all of the new laws encouraged or stimulated a demand for securities from all levels of government, and from government agencies. Commercial banks, Federal Reserve Banks, the RFC, the 12 regional banks of the Federal Home Loan Bank System, the Exchange Stabilization Fund—all were induced to purchase government securities by a number of legislative devices. That some of these purchases might have helped revive the private sector was largely irrelevant to government spokesmen, although they professed otherwise as part of their political rhetoric. As it was, most of the legislation that established government corporations, such as the RFC, simply bled off resources from the private sector that private institutions could have used more efficiently.

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Accommodating Changes in the Relative Demand for Currency: Free Banking vs. Central Banking

George A. Selgin

Introduction

What is commonly called "money" can be held in either of two forms. There are deposits, from which payments can be made by check, and currency or hand-to-hand money. Even though the total demand for money may be stable or even constant, a change in the public's desired ratio of currency to deposits requires accommodative changes in the relative supply of each if monetary instability is to be avoided. This paper examines the relative capacity of free banks and central banks to accommodate changes in the demand for currency when total money demand is unchanging. It also discusses some consequences of a disequilibrium currency supply, showing the role it has played in past monetary crises.

As used in this paper, a "free banking" system is one in which banks are bound by the law of contract only, without being subject to any special regulation. Entry into a free banking system is unrestricted, and free banks may extend their liabilities to the public in any form, including circulating bank notes as well as checkable deposits. Free banks are assumed to invest the proceeds from liability expansion in assets producing the highest expected risk-adjusted interest return. They must, however, redeem their inside bank money liabilities on demand in some outside base money, which is held as a reserve to be used to settle clearings among the banks.

A central banking system, in contrast, is one in which a single bank possesses a monopoly in currency supply, which allows its liabilities

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Cato Journal, Vol. 7, No. 3 (Winter 1988). Copyright © Cato Institute. All rights reserved.

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to fill the greater part (or perhaps all) of the reserve needs of the deposit banks. The liabilities of the central bank may be the ultimate "outside" money in the banking system or they may themselves be redeemable in some other, outside money. Unlike free banks, which seek to maximize profits, a central bank is assumed to aim consciously at achieving monetary stability.

The Relative Demand for Currency

Before proceeding with our comparison of free and central banking as means for accommodating changes in currency demand, we must carefully distinguish currency demand from outside-money demand. The former is simply a demand for circulating means of payment, whereas the latter reflects the public's desire to hold a form of money that does not involve granting credit to private banks. A rise is currency demand is a routine occurrence that does not involve any loss of confidence in banks; it can in theory be satisfied by a circulating form of inside bank money. In contrast, a rise in outside-money demand means a demand to exchange inside money for outside money, the ultimate money of redemption. In a closed system this implies either a loss of confidence in banks issuing inside money or a failure of the banking system to provide enough inside money for use as currency.[1] In this paper the demand for outside-money is assumed to be unchanging; only changes in currency demand are considered.

The public's division of its demand for money between deposit demand and currency demand is not arbitrary. Particular sorts of plans call for holding currency rather than checkable deposits. Currency is more useful for making change, for example. More important is the fact that the demand to hold currency reflects the degree to which sellers more readily accept currency than checks. Currency permits sellers of goods and services to avoid the inconvenience of depositing or cashing checks, and the acceptance of a check requires a level of trust beyond what is required in accepting currency of equal face value. The acceptor of a check has to have confidence both in the bank upon which the check is drawn, which may or may not

[1]Under central banking with fiat money the distinction between currency demand and outside-money demand is blurred; there is no observable difference between the two, since the ultimate money of redemption is also the only currency in the system. Nevertheless it is still possible conceptually to distinguish the desire to acquire hand-to-hand media from the desire to withdraw savings from the banking system. Under central banking with a commodity standard, the former manifests itself in increased demand for the notes of the central bank, whereas the latter involves redemption of those notes for the money commodity.

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be good for the transferred sum, and in the drawer of the check who may or may not possess an adequate deposit balance.

Nor is the relative demand for currency constant. As Eugene Agger (1918, p. 85) notes, it changes along with "basic changes in the economic life of the community" and with "changes in the disposition that is to be made of . . . borrowed funds." In the United States until the 1930s the historical trend was toward less reliance upon currency and greater use of checks and other means for the direct transfer of deposit balances. This was due mainly to improvements in deposit banking, which were spurred on in part by the suppression of competitive note issue. In the last fifty years or so the trend has changed, however, and the demand for currency relative to total money demand has grown substantially.[2]

Other factors have historically caused the currency-deposit mixture to alter in a less regular way. An increase in retail trade relative to wholesale, including financial trade, favors greater use of currency because the former involves smaller, anonymous exchanges where less trust is possible, whereas the latter involves larger exchanges among previously acquainted parties. In the past, when wage payments were more often made in currency, payroll requirements caused weekly and quarterly cycles in currency demand. The demand for currency also increased during the autumnal expansion of agricultural activity, and there are still seasonal peaks in demand due to holidays (such as Christmas), which involve a burst of retail trade. Besides these influences Phillip Cagan, in his study of "The Demand for Currency Relative to Total Money Supply" (1958), lists the following: expected real income per capita; interest rates available on demand deposits (a measure of the opportunity cost of holding currency); the volume of travel; the degree of urbanization; the advent of war; the level of taxes and incentives for tax-evasion; and the extent of criminal and black market activities.[3] Changes in the currency ratio in the United States due to these and other factors since the turn of the century are shown in Figure 1.

A final factor already alluded to that affects the relative demand for currency is the extent of business confidence. According to Agger

[2]According to Bowsher (1980, pp. 11–17), the ratio of currency to demand deposits rose in part because of a fall in the importance of demand deposits relative to savings accounts. Nevertheless the trend is surprising in view of the development of alternatives to currency, such as credit cards, and of the substantial increase in interest rates, which are a measure of the opportunity cost of holding cash. Many economists attribute this growth in demand for currency to the expansion of the "underground" economy.

[3]On the influence of war in particular, see McDonald (1956). On that of changes in interest rates on demand and time deposits, see Becker (1975).

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FIGURE 1

RATIO OF CURRENCY TO CHECKABLE DEPOSITS SINCE 1900

SOURCE: Adapted from Meyer (1986, p. 97).

(1918, p. 86), a decline in confidence "lessens the acceptability of the check as an instrument of exchange and usually involves an increase in the demand for media of more general acceptability." Except during panics a loss of confidence extends only to individuals and not to banks so that, although it causes an increase in currency demand, it does not involve any increase in outside-money demand; that is, it does not imply a desire on the part of the public to remove outside money from the banking system. "Ordinarily," Agger (1918, p. 87) notes, "the shifting of demand is rarely so complete [and] it is only isolated banks that suffer a complete loss of confidence."[4] Pres-

[4]To consider only currency demand and not outside-money demand is not to neglect

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sure is more likely to be exerted by depositors desiring currency, including bank notes, than by holders of notes seeking to redeem them in outside money.[5]

This variety of influencing factors makes the relative demand for currency highly variable and sometimes unpredictable.[6] In consequence, banks may have difficulty accommodating changes in the relative demand for currency even when the demand for inside money as a whole is predictable or does not change. Yet is is essential that the public be able to acquire media of exchange in a mixture that suits its needs. Holders of inside money want to be able to switch from deposits to currency or vice versa depending upon which means of payment or combination of means is most convenient and best suits the circumstances. If the public's wants are not satisfied, significant inconvenience and reduced opportunities for making desired purchases result.

Bank borrowers also may need to receive credit in one rather than the other form (checkable deposits or currency), so that a relative deficiency of either will cause credit-market stringency just as if the total availability of loanable funds were reduced. As Agger (1918, p. 87) puts it:

> Inability to meet an expanding demand or impediments in the way of issue of either form of bank credit may entail serious consequences. For those desiring credit in any form and unable to obtain it [for want of the desired media] the situation is alarming. The normal conduct of their business may depend upon obtaining bank accommodations of an acceptable form. Stringency in the market for such accommodation is . . . bound to be costly and a source of anxiety.[7]

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the usual consequences of a falling off in business confidence. Historically, when a general decline in confidence has led to increased outside-money demands it has been because of banks' failure to meet depositors' increased demands for currency through increased issues of inside money. For evidence of this, see below. On the problem of panics under free banking, see Selgin (1988, pp. 133–39).

[5]Somers (1873, pp. 204–25) writes with regard to conditions in 19th-century England that "when the situation is so bad that distrust or panic sets in it is the withdrawal of deposits by their conversion into currency, and not the cashing in of notes, that gives the fatal blow to a tottering establishment."

[6]See Cagan (1958); also Agger (1918, pp. 78–86), McDonald (1953, 1956), Brechling (1958), Ahrensdorf and Kanesthasan (1960, pp. 129–32), and Khazzoom (1966). According to these studies the traditional assumption of a constant or predictable currency ratio, determined predominantly by custom and institutional factors, is not supported by the empirical evidence.

[7]Agger's general discussion (pp. 76–90) surrounding this passage is one of the best on this whole subject.

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The amount of credit granted in a well-working banking system should not depend on the form of payment medium desired, so long as there is no special demand for the ultimate money of redemption. A well-working system should also permit the unrestricted interconversion of deposits and currency once either is outstanding, without leading to undesired changes in the total money stock.

Currency Supply under Free Banking

When banks are unrestricted in their ability to issue bank notes, each institution can meet increases in its clients' demands for currency without difficulty and without affecting its liquidity or solvency. Under such free banking conditions the "transformation of deposits into notes will respond to demand," and banks will be able to supply credit in the form that borrowers require (Agger 1918, p. 154). When the customers of a note-issuing bank—either borrowers or depositors—desire currency, the bank offers them its own notes instead of a deposit balance. The supply of currency is flexible under unrestricted note issue because bank note liabilities are, for a bank capable of issuing them, not significantly different from deposit liabilities,[8] making it, as Agger (1918, p. 154) explains, "a matter of indifference to the note-issuing bank which form its credit takes." The issue of notes in exchange for deposit credits merely involves offsetting adjustments on the liability side of the bank's balance sheet, with no change on the asset side. When no longer needed in circulation the notes return to the issuing bank, which may use them again the next time the demand for currency increases. This feature of competitively-issued notes renders them different in a crucial way from monopolistically supplied currency, which tends to be employed as high-powered money.[9]

Freedom of note issue thus ensures the preservation of an equilibrium money supply as demand shifts from deposits to currency and vice versa. It assures that savings are intermediated even when those who wish to save want to hold bank promises in a form useful in circulation. It also assures that a growing demand for inside money that involves an *absolute* increase in currency demand is readily met instead of going unsatisfied because of a shortage of currency.[10] The

[8]See Agger (1918, p. 76) and Dunbar (1917, pp. 17–18).

[9]Active interbank clearing and redemption of competitively issued notes and checks restrict the ability of free banks to overissue money—whether in the form of deposits or currency. See Selgin (1988, chaps. 3–6) and Dowd (1988).

[10]"Generally speaking, an increase in the supply of money in the form of check-currency [deposits] must normally appear as part of a composite supply, in which other types of currency are represented; . . . the absence of these other types may effectually prevent the issue of check-currency itself." See Marget (1926, p. 255).

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ability of free banks to function smoothly as intermediaries, even in the face of changing currency demand, stems from their note-issuing powers.

Monopolized Currency Supply

When the supply of currency is monopolized, the ability of non-note issuing (deposit or commercial) banks to convert deposits into currency is restricted. Deposit banks are not able independently to fulfill currency demands. This causes them to treat the liabilities of any privileged, currency-issuing bank as a valuable asset, used both to supply their customers with currency and as a high-powered money for the settlement of interbank clearings. The amount of this high-powered money and its division between banks and the public (like the amount of commodity money in a free banking system) becomes a key, proximate determinate of the size of the total stock of inside money. When the public's demand for currency increases, deposit banks are forced to relinquish their holdings of notes or fiat currency (or deposits convertible into notes or fiat currency) of the monopoly bank of issue.[11] This means that they lose their reserves of high-powered money. Unless the monopoly bank of issue adjusts the amount of its credits to the deposit banks to offset their reserve losses to the public,[12] the lending power of the deposit banks must fall, and the banks will have to contract their balance sheets. Thus, in the presence of a monopoly bank of issue, a change in the *form* in which the public wishes to hold money balances causes a disequilibrating change in the *total supply* of money.[13]

The same conclusion holds for uncompensated reductions in the relative demand for currency. In a system with monopolized currency issue, such a change results in a return of currency to the deposit banks, which then add it to their reserve holdings and use it as a

[11]According to Somers (1873, pp. 207–8), "when [the unrestricted right of note issue] is stopped, and notes are only authorized from a central source, the facility a bank may enjoy in supplanting itself with currency for the uncertain demands upon it can only be in proportion to its proximity to the Issue Department."

[12]The amount of "reserve compensation" needed will be less than the actual increase in currency demand.

[13]Thus McLeod (1984, pp. 65–66, n. 15) writes that a system of competing banks of issue (where no distinction is made between note and deposit liabilities as far as reserve needs are concerned) "has certain practical advantages if, as is usually the case, there are seasonal fluctuations in the public's demand for notes relative to deposits. In [a system with monopolized currency supply] the peak seasonal demand for notes withdraws reserves from the banks and causes a seasonal credit stringency, and in a managed money system the central bank or other monetary authority must consciously act to offset any such tendency." The same is true concerning cyclical but nonseasonal changes in the relative demand for currency.

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basis for credit expansion. A fall in the relative demand for currency results in monetary overexpansion even though the demand for money has not fallen and even though there is no expansion of credit by the monopoly bank of issue. If changes in the relative demand for currency are not to result in monetary disequilibrium under central banking, the central bank must engage in continual "reserve compensation." It has to adjust the supply of base or high-powered money in response to changes in the amount of base money needed in circulation. When there is an increase in the relative demand for currency under central banking, the authorities must adjust the base by the amount of the increase in the relative demand for currency (the shift from deposit demand to currency demand) minus this value multiplied by the reserve ratio.[14]

This result, that changes in the relative demand for currency will affect total money supply under central banking unless offset by reserve compensation, is well recognized in the literature on central banking.[15] But past writers have tended to view the problem as one inherent in all fractional-reserve banking, whereas the truth is that it is only a problem in systems where the issue of currency is monopolized.[16]

Instruments for Reserve Compensation

How can reserve compensation actually be undertaken by a central bank when the public's demand for currency changes? Let us continue to assume that the total demand for money (currency plus deposits) is unchanging and that only its division between currency demand and deposit demand alters. To simplify the problem even further, let us also assume that the relative demand for currency is known to the monetary authority. We thus put aside the greater part of the challenge that confronts the central bank (which has to do with how it can know how much currency it ought to supply) to consider whether the bank can actually make desired adjustments of a known dimension. Our concern is to examine the efficacy of various instruments for reserve compensation—statutory reserve requirements,

[14]Reserve-compensation formulae for changes in the demand for currency under central banking appear in Selgin (1988, pp. 113–15 and pp. 124–25).

[15]See for example Cagan (1958) and Friedman (1959, pp. 66–67).

[16]Friedman (1959, p. 69) revealed an awareness that the problem stems from monopolization of the currency supply when he noted that it might be solved by allowing competition in note-issue. At the time, however, Friedman was less sympathetic toward (and, one might add, less understanding of) free banking than he is today, and he described the solution of competitive note-issue as "the economic equivalent to counterfeiting." Cf. Friedman (1953, p. 220).

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open market operations, and rediscount policy—in accommodating a known currency demand.[17]

Statutory reserve requirements, the first instrument we will consider, highlight the significant distributional impact of certain approaches to reserve compensation. Although a correct adjustment of the aggregate supply of base money preserves monetary equilibrium on the whole, the improper distribution of reserve credits or debits brings welfare losses or gains to particular banks.[18] Since changes in the relative demand for currency do not affect all banks simultaneously or uniformly, an ideal policy would have to make continual adjustments in statutory reserve requirements, bank by bank. This poses an impossible administrative problem. Furthermore, it requires that the central authority know, not just the total extent of the public's shift into (or out of) currency, but also which banks are affected by the shift.

Second, for adjustments in statutory reserve requirements to be adequate to accommodate substantial shifts into currency, the supply of base money held in "free" statutory reserves would have to be large. A reduction in statutory reserve needs frees up more base money for use in circulation, but this is of no avail if the total supply that can be released is less than the increase in demand. The phasing out of statutory reserve requirements would obviously not be possible if they were needed for reserve compensation.

The last point is important since statutory reserve requirements are themselves a barrier to automatic adjustments in the supply of deposit money. This becomes apparent when the assumption that the total demand for money is unchanging is (momentarily) relaxed. Of course the monetary authorities, if they knew the extent of changes in total money demand, could make the necessary modifications in their reserve requirement adjustments, but this would just add another layer of complexity to an already tremendous administrative and calculational burden.[19]

A second vehicle for reserve compensation is open market operations. The fundamental problem with this instrument is also dis-

[17]By "known" I mean that the total quantity of currency demanded is known; I do not mean that the distribution of this demand—how changes in it will affect the reserve position of particular deposit banks—is known. To assume otherwise would be to grant too much in favor of the case for central banking.

[18]Obviously these welfare changes affect not just the banks but also their borrower customers. In the event of a severe currency drain, depositors at some banks may also become victims of a restriction of payments.

[19]For further comments on the shortcomings of statutory reserve requirements as instruments for monetary control, see Friedman (1959, pp. 45–50).

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tributive. Although it allows direct control of the total amount of base money created or withdrawn, it does not provide any means for ensuring that base money is issued to banks experiencing currency withdrawals or, alternatively, that base money is withdrawn from banks experiencing redeposits of currency. Laughlin Currie (1934, p. 17) draws attention to this point:

> If the reserve banks should buy bonds to the amount of the increase in cash in circulation, less the amount of the reserve formerly held against withdrawn deposits, it would appear that the composition of money has changed but not its volume. This would be true if the reserve bank funds, arising from the purchase of bonds, go to those banks . . . experiencing withdrawals.

But, as Currie (1934, p. 114) observes, the banks receiving the new base money from open market sales will probably be different from those stricken by currency withdrawals. Those banks that receive new base money and do not need it to offset reserve drains will employ it like any other increment of excess reserves, to increase their loans and investments.[20]

Opposite consequences follow attempts to offset by open market sales an inflow of currency due to a shift in demand from currency to deposits. "Here again," Currie (1934, p. 114) writes, "the difficulty is that the bank gaining reserves from the deposit of cash currency may not be the same bank losing reserves from the selling operations of the reserve banks." As with adjustments in statutory reserve requirements, monetary equilibrium in the gross sense will be preserved, but with substantial welfare effects.

To some extent interbank lending might reduce these welfare effects from reserve compensation. But this possibility is limited by the fact that banks receiving excess base money will not necessarily lend it to other banks in need of reserve compensation. This may or may not be the most profitable avenue of employment for the surplus funds. Banks suffering reserve losses from currency drains might not offer to pay a high enough interest rate to attract emergency loans, especially if they fear the currency withdrawals may be permanent ones, which would make it difficult to repay the loans.

A final instrument for reserve compensation is rediscount policy. This seems to offer the advantage of automatically channeling emergency supplies of base money only to banks in need of them, without requiring the monetary authorities to make decisions on a bank-by-bank basis. Murray Polakoff (1963, p. 203), generally a critic of rediscount policy, writes that it "is particularly well suited to supply a

[20]Cf. Whitney (1934, pp. 159–60).

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portion of reserves for seasonal needs and reserve losses and supplying them directly and immediately to the points where they are most needed." He adds that "this is not true of open market operations."[21] A defect of rediscounting, however, is that it relies on deposit banks' knowing whether currency is being withdrawn from them because of (a) an increase in their clients' demand for currency or (b) dissaving (a fall in the demand for all types of inside money).[22] In general it is not possible for banks to know which of these causes is behind some withdrawal of currency by their depositors. Banks may mistakenly borrow base money from the central issuer (by rediscounting) to offset drains of the second type, forestalling the credit contraction needed in such cases to preserve monetary equilibrium. Distributing emergency base money by the rediscount mechanism does not guarantee that it goes to banks suffering from currency drains due solely to changes in the relative demand for currency.

All this assumes that banks, if they knew how, would borrow from the central issuer only the precise amounts needed to compensate their losses caused by changes in the relative demand for currency. But the extent of borrowing also depends on the rate of rediscount charged by the central bank. A rediscount rate below the market rate encourages borrowing, not merely for reserve compensation but also for acquiring excess reserves to relend at a profit. Furthermore, even if banks borrow from the central bank only to offset reserve losses due to currency withdrawals, the return of currency from circulation when the relative demand for it declines may not lead to offsetting repayment of borrowed reserves. If the rediscount rate is too low, the surplus base money will be relent instead.

Winfield Riefler (1930, p. 161) cites an example of this in the United States just after World War I. Commercial banks had borrowed heavily from the Federal Reserve during the war to offset reserve losses due to an increased relative demand for currency. At the close of the war, when demand shifted back to deposit balances, returning Federal Reserve notes "were not used to repay member bank borrowings in any corresponding amounts." Instead, redeposited currency "went in considerable part to build up member bank reserve balances":

> Member banks as a group . . . were content to maintain their indebtedness [to the Federal Reserve banks] at about the level it had previously attained, using funds released from circulation . . . to

[21]For a general discussion of the disadvantages of rediscount policy as a means for monetary control, see Aschheim (1961, pp. 83–98).

[22]This possibility does not violate the assumption of a fixed total demand for money so long as there is an equal increase in money demand elsewhere in the system.

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> expand their loans, for which there was an active demand at attractive rates.

The resulting expansion of the money supply undoubtedly contributed to the boom-bust cycle of 1920–1921.

An above-market rediscount rate, a "penalty" rate, also does not ensure proper borrowing for reserve compensation. A penalty charge for funds borrowed to be kept in reserve leads to a less than optimal amount of reserve compensation, since a bank that pays penalty rates for its reserves is not, at the margin, better off than one that contracts its liabilities to make do with reserves it already has. Therefore a penalty rediscount rate is likely to lead to insufficient reserve compensation at times of expanded relative demand for currency. This conclusion applies with greatest force when increases in the relative demand for currency are expected to be long lasting or permanent.[23]

All of this assumes that a penalty rate or below-market rate of interest can at least be identified. In truth the variety of interest-earning assets available to banks, with different nominal rates of interest, makes it difficult to choose a measure for "the market rate" against which the rediscount rate may be compared. As Polakoff (1963 p. 192) notes, the existence of a distinct market rate is a peculiarity of English banking not present in other systems:

> In Great Britain, it is the bill dealers and not the commercial banks that borrow directly from the Bank of England. Since the former specialize in a particular kind of asset—formerly commercial bills and now Treasury bills—and since the Bank rate is higher than the rate on bills, the discount rate in that country truly can be considered to be a penalty rate when dealers are forced to seek accommodation at the central bank.

Finally, even where some reasonable rule for setting a proper rediscount rate does exist, the rate has to be continually adjusted to reflect changes in the market rate.[24]

Historical Illustrations

History contains many episodes of banks failing to respond adequately to changes in the relative demand for currency. Most have been due to the failure of central banks to supply deposit banks with supplementary high-powered money to satisfy their depositors' tem-

[23]See Currie (1934, p. 113). This insight is also relevant to the German experience, discussed below, were emergency issues of currency were subject to a 5 percent annual tax.

[24]See Friedman (1959, pp. 40ff).

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porary withdrawals of currency. A few examples will help to illustrate points made in the previous sections.

We have already noted the 1919 episode in the United States where an uncompensated shift of money demand from currency to deposits resulted in an excess supply of inside money taken as a whole. More notable and frequent, however, have been cases in which the supply of inside money has been allowed to contract excessively due to insufficient issues of currency to accommodate depositor withdrawals.

In London, for example, the Bank of England has been the sole supplier of currency since it was established in 1694. Other London banks rely upon their reserves of Bank of England notes to supply depositor's currency needs. Through most of the first one and a half centuries of its existence, the Bank of England felt no obligation to assist other bankers who found themselves stripped of cash by a shift of demand from deposits to currency. Partly in consequence of this, financial crises occurred in 1763, 1772, 1783, 1793, 1797, 1826, 1836, and 1839. Each was marked by a significant increase in the demand for currency for making payments in and around London. Confidence in Bank of England notes was not lacking, and there were few demands to redeem these in specie. Nor was there any evidence of a rush to redeem notes of "country" banks (which were allowed to issue notes because of their location outside of a 65-mile radius from the center of London) or to exchange them *en masse* for Bank of England notes. The problem was that country bank notes were not suitable for use in London where their issue and redemption were prohibited. A drop in the acceptability of checks and other noncurrency means of payment in and around London translated, therefore, entirely into greater requests for the notes of London's sole issuing bank.

Henry Thornton ([1802] 1978, p. 113), referring to the crisis of 1793, observed:

> The distress arising in London . . . was a distress for notes of the Bank of England. So great was the demand for notes, that interest of money, for a few days before the suspension of payments of the bank, may be estimated . . . to have been about sixteen or seventeen per cent. per ann.

Had other London banks been allowed to issue notes the pressure might have been significantly reduced, since their customers might simply have converted their deposits into notes that were also liabilities of the banks. Bank of England notes would not have occupied a privileged position in bank portfolios, and they would have been routinely returned to their issuer for redemption like other competitively issued liabilities. The public, in turn, would have had no special reason to demand Bank of England notes, since notes of other banks would probably have been just as useful for making payments

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throughout the city of London. As matters stood, however, the extraordinary demand for currency in London could only result in an extraordinary demand for Bank of England notes. Because the directors of the Bank of England were concerned only with their Bank's solvency, however, they did not manage its issues to protect other London banks or to prevent a general contraction of credit. Instead, observing the prevailing state of panic and confusion, and fearing that bank closings would generate a general loss of confidence that would threaten the Bank's (specie) reserves, the directors often *contracted* its issues, making matters even worse. Perhaps this action was not even calculated to serve the interests of the Bank of England, but then the extent of the Bank's involvement in the monetary affairs of the rest of the country was not fully appreciated. Indeed, although changes in the relative demand for currency were a frequent cause of what later became known as "internal drains" upon the resources of the London banks, Hayek (p. 39) observes in his introduction to Thornton's *Paper Credit of Great Britain* that "it took some years . . . for the Bank of England to learn that the way to meet such an internal drain was to grant credits liberally."

The Bank Act of 1844 ("Peel's Act") not only restricted the ability of the Bank of England to generate excessive quantities of base money (as the Bank had, according to the Bullion committee, in the years following the suspension of 1797); it also prevented the Bank from making needed adjustments to the supply of currency in response to greater demand. In addition, by limiting the note issues of the country banks the Act caused them to employ Bank of England notes to meet depositors' demands where before they might have been able to rely exclusively upon their own issues.

Thus after 1844 episodes of credit stringency were as frequent as before, with interest rates fluctuating in response to the periodic ebb and flow of the relative demand for currency. Peel's Act had to be suspended in 1847, 1857, and 1866. Rates rose every autumn—when currency was used instead of checkbook money for agricultural transactions—and also at the close of every quarter when stock dividends were paid (often in cash). William Jevons (1884) was so impressed by this pattern that he devoted a lengthy article to an analysis of it. He observed (pp. 170–71) the growing tendency of the London and country banks "to use the Bank of England as a bank of support, and of last resort."[25] Jevons (p. 179) also remarked that freedom of note

[25]Particularly significant is Jevons's finding that, in the course of the "autumnal drain," coin and bank notes—including notes issued by "country" banks—moved together. This confirms the view that there was no rush for gold or Bank of England notes as such, but rather a rush for all types of currency. The pressure upon the Bank of England came when the other banks had exhausted their own authorized note issues.

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issue along the lines of the Scottish banks was an inviting alternative means for English banks to accommodate their clients' demands for currency, especially since additional currency issued this way would "return spontaneously as the seasons go round."[26] In spite of his observations, however, Jevons did not recommend that England adopt free banking. On the contrary, he ended his article by defending the Bank of England's quasi-monopoly of note issue, suggesting incoherently that proponents of free banking were guilty of "confusing" free banking with freedom of trade (p. 181).

Except for his opposition to free banking, Jevons in many ways anticipated[27] Walter Bagehot who, in *Lombard Street* (1874, pp. 235–53) drew so much attention to the "lender of last resort" function that it came to be regarded as an official responsibility of the Bank of England and as a rationale for periodic suspension of the Bank Act. Because of his influence, Bagehot is sometimes viewed as the first champion of scientific central banking. Yet the truth is that Bagehot preferred in principle the "natural system" of competitive note issue—the kind of system that "would have sprung up if Government had let banking alone." His formula for central banking was not a *recommendation* of monopolized note issue but an attempt to make an "anomalous," monopolized system work tolerably well. Bagehot (pp. 67ff) did not want to "propose a revolution." Nor would he have seen any need for one—or for a lender of last resort—save for the fact that monopolization of note issue prevented banks other than the Bank of England from using their own notes to fulfill depositors' demands for currency.[28]

Bagehot was aware of the true connection between the monopolization of note issue and the need for a centrally directed monetary policy. Unfortunately, many of those who followed him, including later advocates of central banking, forgot it. Ralph Hawtrey (1932, p. 285) wrote: "When a paper currency is an essential part of the mon-

[26]Unfortunately Jevons believed as well that emergency currency supplied by the Bank of England would also be withdrawn from the system once it was no longer needed in circulation. This was incorrect. Bank of England notes might eventually return to those banks from which they were withdrawn (assuming no change in banks' shares in the deposit business), but having come this far they went no further—they were retained as a vault cash instead of being returned to the Bank of England for redemption and so their total supply would not fall to its original level. Instead, the notes were once again used as reserves to support further lending until the Bank of England made some conscious effort to contract their supply.

[27]Jevons' article first appeared in the *Journal of the Statistical Society of London*, vol. 29 (June 1866), pp. 235–53.

[28]See the discussion of Bagehot's views in Smith (1936, pp. 121ff) and in White (1984, p. 145).

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etary circulation *and one bank possesses a monopoly of note issue,* that bank can secure to itself the position of central bank. It can cut short the supply of currency and drive other banks to borrow directly or indirectly from it." Precisely. Yet Hawtrey, who more than anyone saw the lender of last resort function as the principal rationale for central banking, did not see how central banks' ability to cut short the supply of currency once they possess a monopoly of note issue creates the need for them to serve as lenders of last resort in the first place. If there is a competitive note issue, the traditional argument for a lender of last resort carries much less weight.

The case of England is only the most notorious example of problems arising from a lack of currency under monopolized note issue. In Germany a law similar to Peel's Act was passed in 1875. It placed a ceiling on the note issues of the Imperial Bank, Germany's monopoly bank of issue, which could be exceeded only upon the Bank's payment of a 5 percent annual tax on the excess. Though, according to Hawtrey (1928, p. 101), the limit was at first rarely exceeded, it was surpassed frequently prior to 1914 despite several increases in the fixed limit itself. This was especially true during quarterly payment periods, when the relative demand for currency would rise temporarily, and despite a provision in the law allowing a higher limit on these occasions. Continuing *secular* growth of the demand for currency in Germany led, on the other hand, to longer-lasting contractions of credit. According to Charles Conant (1905, p. 128) "high discount rates became the rule . . . as soon as the business of the country grew up to the limit of the note issue." The high rates prevailed until "the limit of the 'uncovered circulation' of Imperial Bank notes was raised to conform to the increased needs for currency growing out of the expansion of business."[29] Had banks other than the Imperial Bank been free to issue notes, periodic restrictions of credit would have been avoided. The banks could profitably have supplied the public's growing demand for currency. Nor would this have introduced any danger of inflation (as might have arisen had the Imperial Bank been entirely free to exercise its monopoly note-issue privilege) because competitively issued notes would not have served as high-powered money. Notes issued in excess by any bank would have been returned to their issuer for redemption rather than being held as reserves by unprivileged banks to support a multiple, disequilibrium expansion of deposits.

[29]Compare McGouldrick (1984, pp. 311–49), who claims that the Reichsbank carried on a successful, countercyclical policy throughout most of the period in question.

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The American crises under the pre–Federal Reserve National Banking System were also aggravated—and in some cases perhaps caused—by restrictions on note issue by deposit banks. In this case, however, the problem was not monopolization of the currency supply, since note issue was still decentralized. Instead, the currency supply was restricted by special bond-collateral requirements imposed on national bank note issues.[30] When eligible bond collateral was in short supply and commanded a premium, note issue became excessively costly. In consequence, banks sometimes met their depositors' requests for currency by allowing them to withdraw greenbacks (a form of currency issued by the Treasury), which also functioned as a reserve medium. The consequence was a contraction of total bank liabilities equal to a multiple of the lost reserves.[31] That greenbacks were sometimes not available in desired, small denominations also added to the inconvenience suffered by the public.[32]

The problems of the National Banking System before 1914 would have been much less severe had note issue been unrestricted, that is, had banks been able to issue notes on the same terms as they created demand deposits. Free note issue would have satisfied most customers' currency requirements while leaving banks' reserves in place. It also might have made it unnecessary to resort to an agency for reserve compensation such as finally emerged in the shape of the Federal Reserve System.[33] As Milton Friedman and Anna Schwartz note in their *Monetary History of the United States* (1963, p. 295, n.77), the troubles of the National Banking System "resulted much less from the absence of elasticity of the total stock of money than from the absence of interconvertibility of deposits and currency." To achieve the latter, free note issue would have been not only adequate, but more reliable than centralized note issue.[34]

[30]State bank note issues had ceased following a prohibitive 10 percent federal tax on them in 1865.

[31]See Friedman and Schwartz (1963, p. 169). Forced par collection, lack of branch facilities for convenient redemption, and the fact that bond-secured notes were perceived as being a lien on the federal government rather than on their nominal issuers encouraged national banks to hold and reissue notes of their rivals instead of seeking actively to redeem them. Thus these notes were, unlike bank notes in an unregulated system, a kind of high-powered money. Their supply would not contract in response to any fall in the demand for currency, and their issue on more liberal terms (short of complete deregulation) might have led to serious inflation. This was, however, not a problem of practical concern in the latter part of the 19th century. On the downward-inelasticity of national bank notes, see Dunbar (1897, pp. 14–22).

[32]On this, see Timberlake (1978, pp. 124–31).

[33]See Smith (1936, pp. 133–34).

[34]Although many contemporary writers saw free note issue as a potential cure for the

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The most significant financial crisis caused by an uncompensated drain of currency from bank reserves was the "great contraction" in the United States from 1930 to 1932. This involved a large-scale movement from deposits to currency, which was only partly offset by Federal Reserve note issues. The result was a drastic decline in the total money stock followed by a terrible banking collapse.[35]

According to James Boughton and Elmus Wicker (1979, p. 406), this particular shift from deposits to currency was triggered by the "massive decline in income and interest rates" that began in the fall of 1929 and led to an increase in the relative frequency of small payments combined with a reduced opportunity cost of holding currency.[36] Also encouraging the shift from deposits to currency were a two percent federal tax on checks (enacted in June 1932) and an increase from two to three cents in the postal rate for local letters (from July 1932 to June 1933). As Boughton and Wicker (1979, p. 409) point out, these changes increased the cost of paying local bills by check. Finally, when state authorities began declaring bank holidays in response to insolvencies caused by currency withdrawals and loan losses, they unwittingly provoked even greater withdrawals of currency by depositors. When banks go on holiday, deposits are immobilized and checks become practically useless in making payments. Currency can, however, still circulate while banks are temporarily closed. Therefore, any suspicion by the public that their banks will go on holiday will lead to a wholesale flight to currency as consumers rush to protect themselves against the risk of being caught without

problems of the national banks, most believed that some agency was needed for supplying the system with emergency reserves. See for example Morawetz (1909), Noyes (1910), and Perrin (1911). These writers, as well as Sprague (1910), tended to view reserve losses (and consequent monetary contraction) as a distinct problem rather than as a consequence of restrictions on note issue.

The evidence contradicts the view that currency not backed by bonds or not centrally issued would have been unacceptable for supplying depositors' demands during crises. For example, Canadian bank notes flowed readily into northern states to fill the void created by insufficient national bank note issues, even though Canadian notes were not backed by any special collateral. See Johnson (1910, p. 118). Also, clearinghouse certificates and loan certificates were issued in various places and were accepted even though they were of questionable legality. Finally, cashier's checks and payroll checks of well-known firms were issued in small, round denominations to serve as currency. The only shortcoming of such emergency currency was that there was not enough of t. Nonetheless what there was showed every sign of being acceptable to the public, and there is every reason to think that freely issued bank notes would also have been accepted. On emergency currencies issued during the Panic of 1907, see Andrew (1908). On clearinghouse note issues, see Timberlake (1984).

[35]For a general discussion of this episode, see Friedman and Schwartz (1963, chap. 7).

[36]See also Boughton and Wicker (1984, pp. 366–67).

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any means for making purchases.[37] The failure of the federal authorities to provide adequate reserve compensation during this flight to currency contributed significantly to the severity of this phase of the Great Depression. It caused interest rates, which for a decade had probably been below their "natural" level, suddenly to rise substantially above it.

In all of these historical episodes undesirable changes in the total supply of money occurred as a result of changes—sometimes merely seasonal changes—in the relative demand for currency. Had it not been prohibited, freedom of note issue would have gone far in eliminating this problem, and where note issue was relatively free, as it was in Scotland and Canada, the problem did not arise.[38] Dependence upon a lender of last resort, on the other hand, does not get to the root of the problem, since it generally involves a monopolized currency supply that is also "inelastic" and that can be managed properly only with great difficulty, if at all.

Conclusion

Obviously, changes in the relative demand for currency are only one of many difficulties banking systems have to confront. Because free banking is better equipped than central banking to deal with this particular adjustment does not, therefore, mean that it is a superior system all-around. Nevertheless, when one considers the very large contribution disequilibrium currency supplies (that is, unaccommodated fluctuations in currency demand) have made to past monetary crises, this single advantage of free banking seems to be a very important point in its favor.

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[37]In view of this, it would have been better had state authorities declared a mere restriction of payments, prohibiting withdrawals of currency and coin, instead of outright holidays. This would have allowed checking-account transactions to continue and would not have provoked as complete a flight to currency in neighboring states.

[38]On the supply of currency in the (pre–1935) Canadian banking system, see Holladay (1934) and Root (1894).

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Automatic Stabilizing Mechanisms Under Free Banking

Kevin Dowd

Introduction

One objective of this paper is to explain the automatic stabilizing mechanisms inherent in a free banking system. Starting from an initial primitive state of society, I will suggest how a banking system would evolve in the absence of state intervention. The state is assumed only to enforce contracts freely entered into by private individuals. Government expenses are paid through taxation, but there is no taxation specific to the monetary system. (In other words, there is no seignorage.) The evolutionary process is driven by individuals' pursuit of their own private interests, and no one consciously attempts to promote any wider "social interest." At each stage individuals seek to reduce their exchange or operating costs, and these attempts lead to the growth of new institutions that reduce the costs of coordinating economic activity.[1] With no state interference to hinder it, this evolutionary process would lead to the development of a highly sophisticated "free banking system" with several distinctive features, including: (1) multiple note issuers who would guarantee to redeem their notes in a commodity that the community recognizes as valuable; (2) a regular note exchange between these note issuers; and (3) the insertion of "option clauses" into the convertibility con-

Cato Journal, Vol. 7, No. 3 (Winter 1988). Copyright © Cato Institute. All rights reserved.

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[1]This "invisible hand" method of explaining institutional growth was pioneered by the Scottish moral philosophers of the 18th century and has been widely used by social scientists ever since. Menger (1892) used it to explain the development of money, for instance, and it has been used by a number of other writers to explain the evolution of the banking system. See, for example, Wesslau (1887), Meulen (1934), and Selgin and White (1987), among many others. My discussion relies heavily on these earlier studies.

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tracts to protect the note issuers against sudden excessive demands for liquidity. Each of these would contribute significantly to the stability of the monetary system, making the resulting monetary equilibrium a highly stable one.

The second objective of this article is to compare the stability of the free banking system with that of the highly regulated, central banking monetary regimes we have today. Showing how the monetary system would have evolved in the absence of state interference provides a benchmark against which to assess the effects of that interference. The essential difference between free banking and central banking is that the latter involves the suppression of stabilizing mechanisms that would arise spontaneously without government interference. This strongly suggests that central banking is a destabilizing form of state intervention.

The Evolution of a Free Banking System

The Development of Coins

In a relatively primitive society in which individuals are just beginning to trade with each other, "coincidence of wants" problems would arise frequently if market participants are restricted to barter exchanges. Some goods would be more in demand than others, however, and at some stage individuals would realize that they have a better chance of getting the goods they want if they first accept some popular intermediate good and then swap it for the good they want to consume. This resort to "indirect exchange," which employs a certain class (or classes) of intermediate goods, would allow individuals to avoid the "coincidence of wants" problem, but their transactions costs would remain high. In particular, they would still need to measure the quantity of the goods they were offered and assess their quality. They would therefore prefer intermediate goods whose quantity was easily measured and whose quality was relatively uniform. To minimize transportation and storage costs, market participants would also want goods that were sufficiently scarce that small amounts would have a high exchange value. Historically, people have tended to converge on the precious metals as desirable intermediate goods and to abandon alternatives as the advantages of precious metals became more apparent.

The use of precious metals as intermediate goods would still leave individuals with the inconvenience of weighing lumps of metal and assessing their purity. This would create an opportunity for some individuals to act as intermediaries and make their living assessing the purity of the metal brought to them and recasting it into pieces

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of more convenient size. As such practices spread, the fineness and sizes of metal pieces would gradually become standardized, and the private intermediaries would mark the pieces to show their weight and quality. The profits made by the earliest of these intermediaries would attract others, and they would compete with each other for business. It would not take long to realize that they could attract more business by using distinctive marks on the metal pieces they issued. The intermediaries would thus become private mints and their metal pieces privately issued coins.

Each of these private mints would exist primarily to maximize its own profits, which could be generated in several ways. One is by offering competitive minting fees. Another is by developing a reputation for probity to reassure prospective customers that they would not be cheated. A third is by innovation: mints would experiment with coins of new denominations, alternative metals, and so on. Any successful innovations would be imitated by other mints and would become widely adopted. It bears stressing that these mints would have no incentive to cheat by overstating the weight of their coins because such deception would be easy to detect, and this would damage the mint's reputation and hence its business. Furthermore, the law would classify such activity as fraud.[2]

As an aside, it is exactly at this stage that the state historically has intervened in the monetary system. Governments realized they could use their coercive powers to create a legal monopoly that would make the minting business very profitable. Even if the government's service was inferior to that of private mints, the public could be forced to accept it as the state would prohibit its subjects from using the coins of other mints.[3] The government could then impose high minting charges or misrepresent the weights of the coins it issued. Note that it is only the state's monopoly over the means of legal coercion that enables the state mint to stay in business. A private mint could not provide an inferior service and survive because it would have no way of compelling people to use its services.

[2]It could be argued in this case that the law of fraud would be redundant. It would be in the interests of a mint to pay people of unquestioned probity to issue regular reports on the quality of its coins. This would allow the mint to maintain a reputation for honesty and thereby promote its business. All dishonest mints would be thus exposed and driven out of business. This is yet another example of the ability of the unrestrained private sector to police itself quite effectively.

[3]Monetary history is unfortunately full of instances of this abuse of the monetary system. For example, see the *Cambridge Economic History of Europe*, vol. 5, chap. 5, "Money, Credit and Banking Systems."

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The Development of Banks Issuing Convertible Notes

The use of coins would still involve considerable costs, particularly the costs of storage (including the costs of ensuring that one's coins were safe), and the costs of moving coins around. To avoid storage costs, some people would be prepared to pay others who already had the facilities to keep gold safe—those with strongboxes—to store their gold for them. In practice, this would mean metalsmiths ("goldsmiths") or merchants who regularly kept large amounts of gold or silver would be asked to look after other people's gold for a fee, and they would probably do so because the marginal cost would be quite low. Depositors would obtain receipts from those holding their gold or silver attesting to the value of each deposit made.

As the practice spread, it would increasingly happen that when two people agreed on an exchange, one would go and withdraw his coins and hand them over to the other who would deposit them again. Provided that the party accepting payment was satisfied that the goldsmith was likely to honor his commitment, it would be more convenient for him simply to accept the goldsmith's receipt and save both parties the bother of visiting their goldsmiths. Goldsmiths' receipts would thus begin to circulate as media of exchange in their own right. At the same time, the goldsmiths would begin to notice that only a small proportion of their deposits of gold would be demanded in redemption over any given period, and they would realize that they could lend out some of the gold deposited with them and face little danger of being unable to meet their liabilities. This lending activity would give them an opportunity to earn an additional profit.

The goldsmiths would thus become bankers and begin to compete with each other for deposits. One way to do this would be to offer interest on deposits, replacing the earlier fees charged depositors for the safekeeping of their money. More importantly, the goldsmith-bankers would also compete for deposits by offering guarantees to prospective depositors that the receipts-notes issued by them would retain their value. Perhaps the most persuasive guarantee they could offer would be to make their notes "convertible," that is, to promise to convert their notes back into specie. The goldsmith-bankers would in fact have offered such promises right from the start, of course, because no one would have made deposits with them unless they were assured that they could withdraw them. These guarantees would have the status of legally binding contracts, and the violation of such a contract would therefore expose the banker to the legal penalty for default, which we will assume is sufficiently high to make a banker careful to avoid it.

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This commitment to convertibility is one of the most important features of a free banking system, and it has several major implications. First, it would help ensure that bank notes remained relatively stable in value. The value of convertible notes would be tied to the value of gold. It follows that the exchange value of notes against goods in general would fluctuate only with changes in the relative price of gold—that is, the exchange rate between gold and other goods—and we would not normally expect this to be particularly volatile. We might therefore expect the price level to be reasonably stable.

Second, the commitment to convertibility would provide an effective discipline against goldsmith-bankers who issued an excess of notes. When banks issued convertible notes, their circulation would be limited by the demand to hold them. That demand would depend on such factors as the precise features of the convertibility contract (for example, whether the depositor has to give notice when he wants to withdraw his deposit), the bank's reputation, the familiarity of its notes, the number of branches it maintains, and so on. Any notes issued beyond the demand to hold them would be returned for redemption. A bank would not deliberately choose to issue an excess of notes because they would not remain in circulation long enough to justify the expense of putting them into circulation and then taking them back again. If a bank sought to increase its note issue, it might attempt to improve its reputation, advertise its notes more, or open more branches. But it could not increase its note issue simply by putting more notes into circulation. It is one thing to *put* more notes into circulation, but it is quite another thing to *keep* them there.

The Development of Note-Clearing

The next stage in the evolution of the banking system would be the development of a note-clearing system that would arise out of bankers' attempts to raise their profits by increasing the demands for their notes. In the beginning, no banker would accept the notes of other banks when submitted by the public because to do so would make rivals' notes more acceptable and raise its competitors' profits. But any two banks could make themselves jointly better off by agreeing to accept each other's notes. Each bank would benefit because the public would more readily accept the notes of either of the two banks given the knowledge that the other bank would accept the notes at par as well. The notes of these two banks would thus become marginally more attractive than alternative media of exchange such as gold or the notes of other banks. Thus, additional bank pairs would be formed, and it would become increasingly apparent that the eas-

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iest way to organize the note exchange system would be to meet regularly at a central clearing session where the banks would hand back each others' notes and settle the differences.[4] In this way a central clearing system would evolve out of the banks' own private self-interests.[5]

The clearing system is important because it would provide a further restraint on the ability of any one bank to overissue its notes. Without the clearing system a bank that overissued would face a reserve drain only from the general public's returning its notes for specie, and it could take some time for this to force the bank to restrain its issues. Once the clearing system was in place, however, a bank issuing more notes than the public wanted would also face reserve losses at the central clearing sessions. These losses would occur as the public deposited the extra notes at other banks and those banks returned them to the issuing bank. A bank that overissued notes would thus lose reserves through two channels—through direct redemption by the public, and through indirect redemption via the clearing system—but the latter channel would likely operate more quickly.

The Development of a Liquidity Market

We have seen the bankers' self-interests would lead to note convertibility and to a central clearing system, and both of these would discipline any bank that overissued its notes. They would therefore contribute significantly to the stability of the monetary system. However, if a bank was committed to redeem all its note liabilities on demand, it would still face a problem of potential illiquidity given its ability to redeem only a fraction of its liabilities at any given time. With sufficient advance notice, a sound bank would be able to meet demands for redemption by liquidating assets,[6] but a problem could arise if it failed to receive the notice it needed. It is this lack of notice that gives rise to the possibility that an otherwise sound bank might become illiquid and unable to honor its obligations.

Two institutions would develop to deal with this problem. The first would be the growth of a market in short-term liquidity. This

[4]It would not take the banks long to realize that it was expensive to use gold as the medium in which to settle clearing balances. They would therefore introduce a paper clearinghouse medium and use that instead. An historical instance of this is the development of clearinghouse loan certificate among the members of the New York Clearing House Association in the late 19th century. An excellent discussion of this is given in Timberlake (1984).

[5]The evolution of the clearing system is explained in White (1984) and Selgin and White (1987).

[6]If the bank is unsound then it should go out of business anyway. The liquidity problem we discuss is only a source of concern when it affects sound banks.

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would arise because bankers' holdings of liquidity would be subject to random short-term fluctuations that are difficult to predict accurately. At any given time some banks would find themselves with more liquidity than they had anticipated and others with less. Those with "excess" reserves would be willing to lend them out on a short-term basis, while those that were short of reserves would be willing to borrow them, making both groups better off. Experience would teach the lending banks what kind of collateral policy to adopt, what information they needed from prospective borrowers, and so on.

The Development of Option Clauses

However a bank could borrow only if others were ready to lend to it. This is an important qualification because it means that the banking system *as a whole* might not be able to obtain the reserves needed from the liquidity market, even though any *individual* bank could.[7] This constraint could pose a problem if an unexpectedly high demand for cash caused the short-term liquidity market to dry up temporarily as everyone demanded more reserves and no one was willing to supply them.[8] In principle, this could cause the banking system to collapse. Since this danger is caused by the banks' commitment to redeem their notes on demand without notice, the banks might try to avoid it by modifying the convertibility contract on their notes. Instead of guaranteeing to redeem their notes for specie on demand, the banks could reserve the right to defer redemption for some prespecified period on the condition that noteholders would be paid a prespecified compensation when the notes were finally redeemed. In other words, the bankers could insert clauses into the convertibility contract that would give them the option of deferring redemption.

These "option clauses" would need to be carefully designed.[9] To remain in business, a bank that introduced option clauses would

[7]There is another possible source of liquidity that we have neglected. If the economy is an open one, then gold can always be obtained from abroad. If gold can be imported reasonably cheaply and quickly, then the chances of the banking system being rendered illiquid are reduced, probably very significantly. I have chosen to ignore this possibility in order to stress the extent to which the domestic economy could evolve ways of helping itself. Alternatively, one could consider the economy I analyze to be the world economy that does not have the option of importing gold.

[8]Frankly, I see no particular reason why such a situation should arise under laissez-faire, as distinct from central banking, but it appears to be a major concern in the literature. See, for example, Gorton (1985) and Goodhart (1985). I discuss it simply to show how a laissez-faire banking system could handle it.

[9]Economists have paid very little attention to the potential of option clauses to deal with problems of illiquidity. The pioneer in the field is Henry Meulen (1934) whose treatment of the problem has been unduly neglected.

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need to reassure the public that its notes were still safe. It would want to make a credible promise that it would only use the option in exceptional circumstances and that noteholders would suffer no losses even then. To be convincing the bank would need to set the compensation paid to noteholders at a level sufficiently high so that it would never be in the bank's interest to exercise the option except in an emergency. The bank might also stress the advantages of the option clause to the risk-averse noteholder.[10] Those noteholders slow to react to a run on specie would lose little or nothing by their failure to be first in line, and indeed would gain from the compensation the bank would have to pay for suspending convertibility. And even if the bank should turn out to be insolvent as well as illiquid, then losses would be shared on a pro rata basis among noteholders and other bank creditors rather than falling disproportionately on those who were not quick enough to demand redemption before the bank suspended. It would thus be clear to the public that the bank would only resort to the option as a last resort, and that the option, if anything, would probably make individuals better off.

Trial and error in the marketplace would determine the period over which redemption could be deferred and the interest to be paid on notes whose redemption was suspended. The exact form of the option clause is therefore difficult to predict beforehand. The compensatory interest rate would presumably be linked to the interest rate in the short-term liquidity market. A plausible formula would be "x points above the average rate prevailing in the short-term market over the past y months." With such a formula, the option would never be exercised in "normal" times because a bank could always obtain liquidity more cheaply on the short-term market. If a liquidity crisis were to develop, however, the short-term interest rate would rise very sharply, and once it rose beyond a certain threshold level, it would be cheaper for the bank to obtain—or strictly speaking, retain—liquidity by invoking its option to defer payment. For simplicity we assume that all banks face the same threshold level,[11] leading all banks to invoke their options simultaneously.

This would set in motion a chain of events that would break the crisis, send interest rates downward again, and alleviate the shortage of liquidity. In the period immediately after the banks started to exercise their options, market interest rates would remain above the penalty rates the banks were paying through the use of their options,

[10]I should like to thank one of the referees for suggesting these advantages to me.

[11]One would expect that competition would leave the banks facing similar thresholds. The analysis can easily be modified to allow for threshold differences.

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making it worthwhile for banks to borrow by invoking their options and to lend on the short-term liquidity market. The banks would thereby channel liquidity to where the demand for it was greatest, thus beginning to alleviate the shortage of liquidity and causing market interest rates to begin to fall. The banks would continue these arbitrage activities until the market interest rate had come down to the penalty level. Once it reached this level, the banks would no longer derive any benefit from exercising their option to defer redemption, and they would be ready to resume redemption on demand. By the time interest rates had fallen to this level, the public's panic for liquidity would have abated. As the demand for liquidity continued to fall, interest rates would return to pre-panic levels.[12] The introduction of option clauses would thus protect the liquidity of the banking system and break the panic. The knowledge of this would itself make the banking system considerably more stable by eliminating the possibility of a bank run starting because of the public's self-fulfilling expectations of a run.[13]

This completes our discussion of the evolution of a laissez-faire banking system. Note, in particular, how institutions like convertibility, a clearing system, a market for short-term liquidity, and option clauses would develop and protect the banking system against shocks. The sole driving force behind these stabilizing mechanisms would be individuals' self-interested attempts to protect themselves against adverse conditions. A free market monetary system would thus be highly stable.

The Effects of State Intervention into the Monetary System

We have seen how an ideal monetary system would have evolved had only two conditions been satisfied: (1) that individuals promote their own private interests, and (2) that the state adopt a policy of benign neglect and do nothing except enforce contracts freely made by private agents. Of these two conditions, the first appears to occur regularly while the second is much more difficult to achieve. A casual glance at monetary history will confirm that states have interfered in the monetary system on an almost continuous basis. Recent monetary

[12]I have assumed that the increased demand for liquidity is only temporary and that the panic subsides once it has peaked. This appears to be a fair characterization of historical liquidity crises.

[13]Self-fulfilling expectations of bank runs have been a major source of concern in the literature. See Gorton (1986). It is therefore reassuring to know that they do not arise under free banking.

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history also confirms that the current monetary system is frequently unstable and very different from the system that would have evolved in the absence of state interference.

But why did a less stable monetary system come to replace a more stable one? The process begins when the state intervenes in the monetary system to raise revenue by suppressing competition and forcing its subjects to accept a quality of service they would reject if they had a wider freedom of choice. At first this intervention takes the form of establishing a government-sponsored bank with a monopoly over note issues. Regulations are also imposed on other banks. These interventions prevent a clearing system from developing and make the private sector banks more vulnerable to shocks, thus undermining the stability of the banking system. The state also frequently turns to the private banking system for forced loans when there is a fiscal crisis (such as a war), and this pressure further weakens and destabilizes it. By this stage public concern about the instability of the banking system has become acute, and the state feels obliged to intervene further to try to stabilize the monetary system. Banks' activities are then regulated and supervised to improve their "safety and soundness." This intervention increases the instability even more, and we end up with the monetary system we have today.

The Effects of a Monopoly Note Issue

Establishing a monopoly bank of issue serves to destabilize the monetary system in several ways. The absence of competition and alternative currency choices makes it more difficult for the public to get rid of an overissue of notes, creating more economic disruption in the presence of a currency monopoly than with multiple competing note issuers.

With multiple banks of issue a bank that overissues its notes would be checked relatively quickly by clearing losses. If there is only one bank of issue, however, there cannot be a clearing system, so the only check on overissue would be direct redemption of the notes by the general public, and this would take somewhat longer. (Assuming, that is, that it is allowed to occur in the first place. With an inconvertible currency, as we have at present, there is no automatic check at all against overissue.) Another way of looking at the difference is to see a monopoly bank's overissue as similar to what would happen if multiple banks of issue were able to form a cartel and expand in tandem, so that none suffered clearing losses. The banks would still be disciplined when the public brought in notes for redemption, but

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the process of correcting the overissue would obviously take longer. A larger overissue could take place than would have occurred otherwise, and the economic disruption it would cause would obviously be greater.

The lack of competitors thus gives a monopoly bank of issue greater discretion than any competitive bank would have. But it then has to face the problem of how to use that discretion. The government-sponsored monopoly bank would have extreme difficulty judging the likely effects of its actions, and it would frequently have to fall back on its judgment and manage as best it could. To avoid this and make its actions consistent, the monopoly bank would try to develop rules of thumb to guide it on a day-to-day basis, but what should such rules be? In practice there is a wide range of possible policies to choose from, and it would be very difficult to choose one.[14]

This problem of finding the right policy would soon become even more difficult because the private banking system would adapt to the monopoly note issuer and gradually force the monopoly bank into the role of "guardian" of the monetary system. This would occur as private banks increasingly used the monopoly bank's notes as reserves. Paper would replace gold as the other banks' reserve medium because paper is easier to store and less costly to transport than gold, and because the public would generally prefer to withdraw their deposits in notes rather than gold. As notes replaced gold in circulation and in banks' vaults, the country's gold reserves would tend to become centralized in the vaults of the monopoly bank of issue. This would force on it the role of lender of last resort in a liquidity crisis. Even if it wanted to, the bank would find it difficult to ignore requests for assistance in a crisis because of the danger that the crisis would spread further and destroy it as well. Whether intended or not, the monopoly bank of issue would become responsible for protecting the nation's liquidity, and this would force it to take an increasingly broad view of the effects of its policies. The pressure to find the right policy would increase, but the right policy would be increasingly difficult to find.

The Effects of Restrictions on Bank Organization

A second source of instability is the regulation of the monetary system. In the early days of state intervention, regulations would be

[14]In general, there is no clear criterion that would allow policymakers to select one particular rule over another. If one adopts a monetary target, for instance, should it target M1, M2, or something else? If M1 is chosen, what version of M1 should be preferred? What should the target growth rate be? And so on. For any answer one gives to these questions, there is always another that is equally plausible, and one has no way of knowing which is best.

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imposed to reinforce the monopoly of the note issuer. A good example was the "six partner rule" embodied in an Act of the British Parliament of 1709. This Act restricted all banks in England and Wales to partnerships of no more than six persons. The intention was to reinforce the Bank of England's privileges (in return for which the Bank gave the government a subsidized loan). The Act effectively prohibited reliable (that is, large) aggregations of capital in banking as those partnerships that were allowed to enter the industry were too small to be able to withstand any substantial shock. People knew how vulnerable the banks were, and whenever there was any disturbance, they rushed to withdraw their gold. As a result, scores and sometimes hundreds of these banks failed. The "six partner rule" thus made English banking extremely unstable. Restrictions on branch banking have had a somewhat similar effect in the United States. Many examples of this kind of regulation exist. What they all have in common is that they destabilize the banking system by hindering the attempts of banks to protect themselves against shocks.

The Effects of Further Government Demands for Revenue

It soon become apparent that the state could not always obtain the revenue it wanted by simply establishing or strengthening a currency monopoly. Each time a war broke out the state would experience considerable—and often extreme—financial difficulties. Government expenditures would rise steeply, but it would be difficult (or at least awkward) to cover these additional expenditures by taxation or borrowing. The government would therefore pressure the banking system for subsidized loans instead. These loans would drain the banks' reserves and thereby expose the banking system to a liquidity crisis. This in turn would weaken the ability of the banking system to maintain convertibility and threaten not only the stability of the banking system, but also the stability of the value of the paper currency. The threat posed by these loans obviously depended on their size, but in some cases they led to the suspension of convertibility. In more extreme cases they also led to inflation.

Two historical examples will illustrate the point. In 1793 the government of William Pitt suddenly found itself at war with France. It had made no provision for war and was reluctant to raise taxes or to borrow enough to cover its additional expenditures. As its expenditures mounted, the government repeatedly applied to the Bank of England for loans. The Bank protested, but dared not refuse, and in making the loans its reserves were seriously depleted. The threat of French invasion in 1797 was then enough to trigger a major liquidity crisis that the Bank did not have the reserves to meet. It was only

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saved from insolvency by the government stepping in to abolish its commitment to redeem its notes.[15] Convertibility was thus wrecked, in large part by the demands the government made on the Bank of England.

Something similar happened at the outbreak of the U.S. Civil War in 1861. When war broke out, the federal government found it difficult to obtain the revenue it wanted by borrowing from the general public. The Secretary of the Treasury therefore drew up a plan to borrow from the banks by compulsion. At the same time, he started to issue U.S. notes that he obliged the banks to redeem in specie. This put the banks' reserves under a great deal of pressure, and they were forced to suspend convertibility by the end of 1861. The federal government then resorted to a series of issues of inconvertible paper money that produced a substantial inflation.[16]

In both these cases the pressure placed on the banking system was enough to destroy convertibility. In each case, however, public opinion was sufficiently in favor of the principle of convertibility that convertibility was restored once peace had returned. The public was prepared to accept inconvertible paper currencies in an emergency like a war, but they were not prepared to accept them on a permanent basis. This antipathy to inconvertible currencies lasted throughout the 19th century and was reinforced by experiences in France during the assignat period, in England during the Restriction period (1797–1821), and in the United States during the Civil War suspension period (1861–1879).

This support for convertible currencies lasted until the 1920s. Support for convertibility then fell as economies tried to readjust after the shock of the First World War and people became increasingly attracted by the idea that further state intervention in the economy was the only way to solve the major economic problems of the day.[17] Supporters of this view were opposed to convertibility because it limited the government's freedom to act. They argued that the commitment to convertibility was nothing more than a needless restraint on the ability of the government to conduct what was euphemistically described as a "rational" monetary policy. By the end of the 1920s, this view had won many adherents and the commitment to convertibility was abandoned soon afterwards by one country after another.

[15]For a good discussion of this episode, see Andreades (1909, chap. 4).

[16]For a discussion of this, see Hammond (1957).

[17]I refer, of course, to the growing influence of Keynesian ideas.

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There was no longer any guarantee that the currency would retain its value. The value of the currency was henceforth to be determined by the amount of it issued by the government. The proponents of inconvertible currency were not particularly concerned because they believed that the extra leeway this gave the government would be used to promote the social good. Even if that meant a certain amount of inflation, they argued, that would still be in the public interest if it helped achieve a "higher" social good than price stability—such as lower unemployment. The price level had thus changed from something the private sector could depend upon in making plans for the future to become a policy tool for the government to manipulate as it pleased.

The argument for managed currencies was based on the premise that the government could be expected to promote the social good, provided only that it was given sufficient power. But this requires that the interests of the state coincide with those of the rest of society, and proponents of governments' economic intervention have failed completely to recognize a serious conflict of interest between the two. This conflict is particularly acute on the question of price stability. The private sector needs a stable framework in which to go about its business and make plans for the future. It therefore has a strong vested interest in the maintenance of price stability. The state has no such interest. Its interest, in fact, is usually to create inflation to reduce the real value of its debt to the private sector. For the state, inflation is simply a form of taxation, and a form of taxation that has the political advantage of being heavily disguised. Whatever damage it might do to the private sector, it enables the state to raise revenue without most of the electorate even realizing that they are being taxed. The new fiduciary monetary regime thus has an in-built inflationary bias, and the result has been the great inflations of the postwar years.

Demands for Further State Intervention

The kinds of intervention into the monetary system we have examined so far were motivated principally by governments' desire for more revenue. But each of these interventions destabilized the monetary system in its own way: the monopolization of the note issue prevented a clearing system's arising and thus made overissues of notes longer lasting and more damaging; the restrictions placed on deposit banks weakened them and made them vulnerable to shocks; and the state's persistent demands for revenue from the banking system weakened and eventually destroyed the guarantee of price

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stability provided by convertibility, and thereby paved the way for inflation.

These problems of monetary instability gave rise to a great deal of public debate, and there were countless proposals of measures to deal with them. Most of these proposals advocate further state intervention oblivious of the fact that state intervention is the cause of the problem in the first place. The state has thus intervened further to correct the instability it caused, and generally made it even worse.

One such intervention was the introduction of a legal requirement that banks of issue redeem their notes on demand, that is, the prohibition of option clauses.[18] This measure was motivated by two beliefs, one true and the other false. It is true that convertibility is a guarantee that notes will retain their value, but it is not true that a failure to force redemption on demand would lead banks to issue notes of inferior value. As the earlier discussion of free banking pointed out, all that is needed to ensure that notes keep their value is a legal system to enforce convertibility contracts. Because of the greater stability of the issuing banks, both the public and the banks stand to gain when banks have the option to defer the redemption of their notes. Enforcing convertibility on demand deprived the banking system of the benefits of option clauses, and thereby exposed it to the danger of bank runs.

There are many other regulations imposed on the banking system that, while designed to make it more stable, have the opposite effect. Two others will suffice here. The first was the Bank Charter Act of 1844 that separated the Bank of England into an Issue Department, which issued notes against a 100 percent marginal reserve requirement, and a Banking Department, which took in deposits and carried on the rest of the Bank's business. The act was motivated by the currency school's belief that monetary crises were principally caused by the Bank's overexpanding its note issues. The aim of the legislation was to restore monetary stability by ensuring that the Bank was forced to maintain sufficient reserves to be able to redeem its notes at any time. Unfortunately, the act also prohibited the Issue Department from lending to the Banking Department, and this exposed the Bank to a serious danger. If depositors withdrew sufficient deposits, then the Banking Department that operated with fractional reserves could default. If this happened, the Bank itself would default despite the fact that it still had plenty of reserves in the Issue Department.

[18]Option clauses were prohibited in the United Kingdom by an Act of 1765. They appear never to have been allowed in the United States.

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This nearly happened on three occasions, and the Bank was saved only by the governments' intervening to suspend the act and allow the Issue Department to lend gold to the Banking Department.

The other example was the institution of compulsory, government-controlled deposit insurance in the United States after the bank failures of the early 1930s. This was introduced in the belief that the banking system would be more stable if banks were free of the danger of sudden runs for liquidity. Unfortunately, proponents of deposit insurance failed to take account of how the banking system would respond to the incentive structure implied by the deposit insurance regime.[19] The new regime encouraged banks to take risks they would otherwise have avoided. The banks that took greater risks could offer stockholders higher expected returns, and the depositors were no longer particularly concerned about these risks because they were insured. At the same time, there was no attempt by the FDIC to charge risk-related premiums. As a result, the system had the effect of subsidizing risk taking. Over time the banks responded to these incentives and adopted policies that are more likely to lead to failure. Thus the FDIC regime had a stabilizing effect in the short-run, but a destabilizing one in the longer run.

Conclusion

This paper has argued that the free market would have provided a stable monetary system had it been left alone to do so. Its stability would have arisen from the attempts of private individuals to protect themselves against shocks. There is, as it were, no public good aspect of stability that requires the state to intervene to provide more of it than the free market would provide on its own. Indeed, state intervention often has just the opposite effect because it suppresses the automatic stabilizing mechanisms that would have evolved under laissez-faire.

This suggests that the free market would still be capable of providing a stable monetary system if the appropriate conditions were established. The problem is then to find the safest way to dismantle the apparatus of state intervention and establish those conditions. We must bear in mind that private agents have grown used to intervention and have adapted to it. Some of them are dependent on it (like some banks are dependent on the FDIC). We must also bear in

[19]Congress was apparently aware of the danger that deposit insurance might lead banks to take more risks, but it tried to tackle the problem by restricting what it considered to be excessively risky activities. A strong case could be made that that only made matters worse.

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mind that people will not adapt to laissez-faire overnight, and the automatic stabilizing mechanisms it would provide will take time to evolve. Our task is therefore to design a program that will take us to laissez-faire but avoid destabilizing the monetary system before we get there.[20]

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[20]For further information about the theory of free banking, see Smith (1936), White (1984), Selgin (1988), and Dowd (1988). For more on its historical experiences, see White (1984) for Scotland, and Rockoff (1974) and Rolnick and Weber (1983) for the United States.

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Deposit Insurance in Theory and Practice

Gerald P. O'Driscoll, Jr.

My purpose in this paper is to analyze how market incentives could substitute for government regulation of banks in controlling risk. The present system for insuring bank deposits is unique in conjoining insurance with a highly detailed system of government regulation. In what follows, I briefly describe and explain the current system.[1] Then I present the rationale for reforming the system by making a transition to private insurance of deposits. Finally, I suggest that privatizing deposit insurance might be only one part of a more general reform of the existing banking system.

The Risks Defined

Two risks need to be distinguished. First, an individual bank may fail and be incapable of paying off its depositors in full. This is a case of failure to fulfill a contract and by itself does not involve any serious third-party effects. Second, the failure of one bank may lead to failures of other banks. The mechanism for this domino effect may be either direct or indirect. It is direct if, for example, the failed bank served as a correspondent bank for other banks, and their losses lead

Cato Journal, Vol. 7, No. 3 (Winter 1988). Copyright © Cato Institute. All rights reserved.

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[1]There are separate federal insurance agencies for, respectively, commercial banks and mutual savings banks, savings and loan associations, and credit unions. In this paper, I concentrate on the case of commercial banks and the FDIC. The principles and issues involved are the same for all depository institutions. An excellent analysis of thrift problems is contained in Kane (1985). Clair (1984) examines just the case of credit unions.

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to their insolvency. The mechanism is indirect if the first bank's failure causes fearful depositors to withdraw their funds from other solvent but illiquid institutions. This "contagion" effect involves a classic banking panic, in which widespread depositor runs on banks occur. In this case, the payments mechanism itself is threatened. If a contagion effect exists, it would be a prime example of the possible third-party effects of a bank failure. In the economist's parlance, the third-party effects are externalities.

In examining whether there are externalities in bank failures, one must distinguish between the two types of risk associated with a failing bank. As I suggest below, policies designed to deal with one type of risk are not necessarily efficacious in controlling the other type. And, more important, the feasibility of a system of private deposit insurance very much depends upon which type of risk insurers would be facing.

Why Deposit Insurance?

The post–World War I period was characterized by a large number of bank suspensions. Between 1921 and 1928 (inclusive), suspensions averaged 552 per year (Friedman and Schwartz 1963, pp. 438–39). Approximately one-sixth of all banks failed during this period of general prosperity and price stability. Three features of suspended banks stand out. First, they tended to be small unit banks. Second, failures were concentrated in agricultural states, a fact reflecting the distress experienced by the agricultural sector throughout this period. Finally, agricultural states with unit banking were also likely to have enacted state deposit insurance systems.[2] I will reconsider this pattern of bank failures at the end of this paper.

Even in comparison to the extraordinary number of bank failures during the previous decade, the early years of the Great Depression saw a marked increase in failures. Between 1929 and 1933, 9,755 suspensions occurred; this was over one-third of the banks then in existence. Suspensions were more widespread and involved larger institutions than in the previous period. It was against this background that the existing system of federal regulation and deposit insurance was implemented.

The primary legislative purpose in creating the Federal Deposit Insurance Corporation (FDIC) was the avoidance of bank runs and the protection of the payments mechanism (Golembe 1960). The tide

[2]In this century, state deposit insurance systems were enacted in Oklahoma, Kansas, Nebraska, South Dakota, Texas, Mississippi, North Dakota, and Washington. See White (1983, pp. 191–204).

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of bank closings and the concomitant contraction of the money supply together threatened the payments mechanism itself. If analyzed in terms of its subsequent history and policies, the FDIC makes much more sense as an agency established to control third-party risks of bank failures than as a protector of small depositors unable to bear losses incurred in the event of an individual bank failure (Kareken 1983, pp. 199–200). In fact, the FDIC has been so successful in pursuit of its goal that until recently it had virtually eliminated bank failures.[3]

The FDIC was created by the Banking Act of 1933 ("Glass-Steagall Act"), whose stated purpose was "to provide for the safer and more effective use of assets of banks, to regulate interbank control, to prevent the undue diversion of funds into speculative operations, and for other purposes." Among other things, the act prevented banks from being affiliated with any firm engaged in the securities business; established limits on loans made by banks to affiliates, including holding company affiliates; prohibited the payment of interest on demand accounts; and empowered the Federal Reserve Board to regulate interest rates paid on savings and time deposits. These regulations were intended to provide for the safety and soundness of the banking system.

It is no accident that federal deposit insurance and the modern federal regulatory system were created by the same act. The incentives established by the insurance system necessitated the regulatory framework. Specifically, from its inception, the FDIC has charged a flat-rate premium for insurance. The statutory rate is one-twelfth of 1 percent—approximately .0833 percent—of domestic deposits (not just insured deposits). Thus, larger banks pay larger premiums, but riskier institutions of a given size pay no more than conservatively managed ones. This premium system confounds sound insurance practices. Since institutions can increase their expected return by selecting a riskier portfolio, they have an incentive to do so. The FDIC's pricing of deposit insurance creates a subsidy to risk taking, a subsidy that can only be captured insofar as banks actually make their asset portfolio riskier.[4]

[3]"From 1921 through 1933, every year requires at least three digits to record the number of banks that suspended; from 1934 on, two digits suffice, and from 1943 through 1960, one digit, for both insured and uninsured banks" (Friedman and Schwartz 1963, p. 437).

[4]This point is well recognized in the literature. Benston (1983) contains an excellent bibliography. More recent papers include Kareken (1983); Short and O'Driscoll (1983a and 1983b); Flannery and Protopapadakis (1984); and Baer (1985).

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The incentive for risk taking constitutes a classic moral-hazard problem for the FDIC. Moral hazard occurs when the provision of insurance itself diminishes the incentives facing the insured to avoid risk, thereby increasing the occurrence of the risk insured against. Therefore, at the same time it implemented the present deposit insurance system, Congress enacted a system of binding regulations on banks. If banks wanted federal insurance, then they had to adhere to the new rules. National banks and state members of the Federal Reserve System were required to join the FDIC, and virtually all commercial banks now belong to the FDIC.

On its own terms, the system worked reasonably well for 30 or 40 years. It began unraveling, however, as competitive forces asserted themselves in financial markets. Inflation, which accelerated and became more volatile in the mid-1960s, appears to have been a catalyst in the process. Consequently, banks and other depository institutions experienced more funding pressure as regulatory ceilings on interest rates payable on deposits became binding. Depository institutions experienced outflows in a process known as disintermediation (O'Driscoll 1985, p. 3).

The emergence of money-market mutual funds and cash management accounts at brokerage firms fueled the competitive fire. From the perspective of depository institutions, the major impact of these new financial products was to alter the structure of their balance sheets. A large percentage of money-market funds' assets is held in certificates of deposit at commercial banks and other depository institutions. Funds withdrawn from depository institutions and placed in money-market funds wound up back in the banking system. In the process, however, deposits paying high money-market rates were substituted for low-yielding, regulated deposits, such as passbook savings accounts. Economic rents previously earned on regulated deposits were thereby competed away.[5]

As banks' funding costs came to reflect more fully the fluctuations in money-market interest rates, it became imperative that their assets also yield competitive returns. Banks responded to these pressures by, among other things, shortening the maturities of their assets and setting floating rates on a higher proportion of their loans (Merris and Wood 1985, pp. 74–75). The alarming increase in the failure rate among banks suggests that in their search for higher yields, banks may have also taken on more risk (Short 1987).

[5]The process probably also changed the distribution of assets among depository institutions, since money-market funds tend to purchase certificates of deposit only from larger depository institutions. Thrifts, in particular, probably suffered on net.

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I have been describing the process by which the de facto deregulation of interest rates paid on deposits occurred. In 1980, Congress ushered in the beginning of de jure deregulation with the Depository Institutions Deregulation and Monetary Control Act. This act created the Depository Institutions Deregulation Committee, whose purpose was to phase out controls on the interest rates that banks could pay on most accounts. In 1982, Congress passed the Garn–St Germain Depository Institutions Act, which accelerated the pace of deposit interest rate deregulation. That act also addressed the problem of insuring bank deposits in a deregulated environment. It mandated that each of the three federal agencies insuring depository institutions examine its insurance system and report to Congress on the feasibility of risk-based insurance. This requirement was the source of renewed interest in and research on deposit insurance.

Pricing Deposit Insurance

Risk-Based Premiums

The FDIC is well aware of the defects of its pricing system. As put in its report to Congress on the deposit insurance system: "Comprehensive government insurance of liabilities is inconsistent with deregulation of the institutions responsible for those liabilities; it is unlikely that government can allow deregulation to proceed much further without addressing the insurance connection."[6]

By referring to the "comprehensive" nature of federal deposit insurance, the FDIC focused attention on one of the most significant aspects of its settlement policy for depositors of most failed banks. For the past 30 years, the majority of bank failures and nearly all large bank failures have been settled by a purchase and assumption (P&A) transaction.[7] In a P&A transaction, the FDIC replaces the bad assets of a failed bank with cash. Another bank then purchases the remaining assets and assumes all the nonsubordinated liabilities of the failed bank. All depositors are thus made whole. The transaction typically occurs overnight, resulting in no disruption to depositors. The only change that they observe is in the name of the bank with which they are dealing.

Several justifications are offered for using P&A transactions, but the FDIC itself has identified the most important reason: "The P&A enables the FDIC to implement its monetary stability objective in a

[6]In *Deposit Insurance in a Changing Environment* (Washington, D.C.: Federal Deposit Insurance Corporation, 1983), p. xiii.

[7]*Deposit Insurance in a Changing Environment*, p. x.

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way that might be impossible if the FDIC had only the option of paying insured depositors directly."[8] Indeed, if protection of small depositors were the main goal of the deposit insurance system, a payoff to them (and permanent closure of the failed bank) would be an equally sound policy.[9] Paying off insured depositors, however, raises the possibility of flight by large depositors from troubled banks in the future. In a payoff, uninsured depositors receive a pro rata payment and a contingent claim on any residual asset value of the failed bank. Large depositors, fearful of incurring at least a partial loss, would be inclined to flee troubled institutions in such an environment. It is believed that such behavior could result in additional bank failures through a contagion effect.

With the virtual collapse of Continental Illinois National Bank, the FDIC added a new wrinkle to the deposit insurance story. In that case, it made an explicit ex ante guarantee not only to all depositors but to all creditors (including those of the holding company). By making explicit (and extending) the blanket guarantee implied by federal deposit insurance, the FDIC starkly revealed the perverse incentives established by the current system. The rational depositor should now be indifferent to the quality of the assets held by any large bank likely to be settled by a P&A transaction.[10]

Recognizing the problems with the current system, the FDIC proposed instituting a three-tier system of risked-based deposit insurance premiums for normal, risky, and very risky banks. Short and O'Driscoll (1983b) examined that proposal. More recently, Flannery and Protopapadakis also offered a useful critique of the FDIC's proposal, in which they presented a public choice analysis of an agency's attempt to assess and price risk (Flannery and Protopapadakis 1985, p. 8):

> Public institutions' decisions are subject to public scrutiny. Such scrutiny can involve lengthy debates, appeal procedures, and compromises between economic efficiency and political needs. Even the most well-meaning and efficient public institutions move with

[8]*Deposit Insurance in a Changing Environment*, p. xi.

[9]Of course, the current $100,000 limit on deposit insurance negates any argument that deposit insurance exists to protect the small depositor.

[10]In the 1982 failure of Penn Square Bank, which had $470 million of deposits, the FDIC did not use a P&A transaction but paid off insured depositors. For a time it was believed that this case signaled a change in policy for handling large bank failures. Continental surely negated any such change and further constrained the FDIC. Further, the agency recognized the inequality of settling the failures of large and small banks differently. (See *Deposit Insurance in a Changing Environment*, chap. 1, p. 1.) Nonetheless, the FDIC has continued to settle some small bank failures through modified payouts to depositors.

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> glacial speed compared to the rapid assessment of information and the continuous reassessment of risk that takes place in the financial markets.

As telling as their public choice argument is, Flannery and Protopapadakis introduce another, even more compelling issue: different insurers will typically assess risks differently (Flannery and Protopapadakis 1985, pp. 7–8). This argument goes to the most basic function of a competitive price system.

Complete information, including information on risk, is not something that individuals bring with them to markets. The market process itself is a source of needed information, information generated through a trial-and-error process. For example, some insurers will demand a relatively high premium for insuring a given risk, while others will charge a relatively low premium. Some insurers will avoid insuring a particular type of risk, while others will specialize in underwriting policies to cover that very risk.[11] This trial-and-error process, comprising innovation and imitation, yields information on the expected losses from insuring a particular risk. Given a good deal of other information (including that on its other risks), the individual insurer has a basis for setting premiums.

The information-gathering function of competitive markets is a continual and unending process. There is no once-and-for-all answer to the question, "What premium should be assessed?" New data constantly render previous calculations obsolete. Further, the process of adapting to these changes by each firm alters the underwriting environment for all others.[12]

Under its proposal, the FDIC would remain a monopoly provider of insurance. As such, it would lack the information generated by competitive markets. Accordingly, it would face an insoluble calculation problem in setting risk-based insurance premiums (O'Driscoll and Rizzo 1985, pp. 138–42). It may be that a system of competitively provided insurance is impolitic at this time, but a rational system of risk-based insurance premiums offered monopolistically by a public agency is simply impossible.

Competitive Deposit Insurance

Short and O'Driscoll (1983b, p. 17) presented a four-point transition proposal for moving to a system of competitively supplied deposit insurance. The plan envisioned a period in which the FDIC would be the chief if not exclusive provider of the basic or underlying policy

[11]See Short and O'Driscoll (1983a); compare Short and O'Driscoll (1983b, p. 17) and Flannery and Protopapadakis (1985, p. 7).

[12]See O'Driscoll and Rizzo (1985, pp. 73–74 and 99–109, especially pp. 101–02).

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covering deposits, and private firms would enter as suppliers of excess policies. The recommendations were as follows:

> First, eliminate *de facto* coverage of deposits above statutory limits; reduce coverage limits; introduce some form of coinsurance. Second, eliminate the statutory requirement that national and state-chartered member banks, as well as banks in bank holding companies, purchase deposit insurance from the FDIC. Third, require the FDIC to utilize the best available information to determine risk categories; require that these risk classifications be used to set premiums that minimize cross-subsidization among risk categories. Fourth, require the FDIC to cover costs plus earn a reasonable return on capital.

The purpose of the proposal was to provide a framework within which private insurers could successfully operate. The first recommendation would provide private insurers an opportunity to enter the market initially by offering excess insurance to banks (or directly to depositors). In this case, risk would be priced at the margin. Some market discipline would thus be introduced into the market for deposits.

The purpose of the third and fourth points was to compel the FDIC to set up risk-based premiums on the basic or underlying insurance policy issued to banks. Further consideration of the economic calculation issue makes me less sanguine than I was two years ago about the feasibility of the FDIC's properly pricing the risk associated with even a limited insurance policy. The first and second points go to the heart of the pricing problem, however. If there is to be any market discipline in the market for banks' depository liabilities, the 100 percent coverage of all deposits provided by P&A transactions must be eliminated. Even were this done, however, the present $100,000 statutory limit would be too high, especially if there is to be a market for excess insurance. Large depositors need only purchase $100,000 CDs from multiple institutions in order to have insured deposits of $1 million or more. The latter strategy is prevalent already among depositors in multi bank holding companies.

This insight highlights the necessity of a deductible of some magnitude. Brokerage firms have developed a market for CDs in lots of $1,000. Simply lowering the limits would not address the problem, therefore.[13] Requiring depositors to coinsure, as is done for most medical policies, would add to market discipline.

[13]The FDIC promulgated a rule that would effectively end the practice of brokering retail deposits. Each brokerage house would only be insured for the first $100,000 of deposits, thus treating the broker and not the customer as the beneficial owner of the deposits. At this point, the FDIC has been unable to implement the rule because of successful court challenges.

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The second point, urging elimination of the statutory requirement to purchase FDIC insurance, specifically addresses the issue of competition, which, as I argue above, is absolutely necessary for rational pricing of deposit insurance. Eventually, it must at least be possible for competitors of the FDIC to underwrite basic policies for banks or individuals.

In terms of the feasibility of this proposal, I would emphasize three points. First, the plan envisages firms entering, as it were, on the fringe of the market and at low capital costs. Specifically, it provides the opportunity for private insurance companies to write excess policies for depositors. For example, even the present reserves of existing property and casualty companies would permit their writing *some* financial insurance. Over time, if the business were profitable, additional capital and new firms would be attracted to the industry. Second, the proposal does not envision that private insurers would ever be providing the present level of coverage. Reduction in the size of total coverage would presumably be an effect of reducing the limits. Third, and most important, private insurers would not be effectively insuring the payments mechanism or the money supply itself. In other words, the function of deposit insurance itself would change with its provision. *The risk against which protection would be offered would be different: limited protection of depositors, not of the payments mechanism.* This final point is key to the feasibility of introducing some competition into deposit insurance. It also raises more general issues for our banking system. If the payments mechanism is no longer being protected by deposit insurance, then something else must be substituted in its stead.

Further Considerations

Until now, I have focused only on reforming deposit insurance. The stringent regulatory system established by the Banking Act of 1933 makes sense, however, only as an offset to the incentives for incurring risk set up by deposit insurance. The effects of the regulatory system are to lessen competition between different types of financial institutions and to inhibit financial innovation. In addition, the act's limitations on banks' permissible activities have inhibited banks' diversification. This, in turn, has arguably lessened the stability of the banking system. The Banking Act of 1933 artificially froze lines of commerce, delimiting the activities in which it is legally permissible for commercial banks, investment banks, brokerage houses, and other financial firms to engage.

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At the time the act was enacted, the distinction between, say, commercial banks and investment banks may have reflected commercial practice, but the distinction was already in the process of breaking down.[14] Indeed, in examining banking and financial history, one is struck by how quickly the traditional business of financial institutions changes with changing market conditions. The business of a typical commercial or investment bank can, perhaps, be defined at a given time, but historically such a definition would not be valid for even a generation.[15]

At the time of Glass-Steagall's passage, branching by banks was either prohibited or severely constrained in most states. The McFadden Act firmly established that national banks had to conform to the policy of the states in which they operated. As a consequence, the United States had a system of thousands of small banks, undiversified with respect to either their deposit base or their loan portfolio. Branching restrictions exposed banks to the effects of downturns in the local economy. This problem particularly afflicted unit banks in rural areas and small towns. Agriculture is notoriously subject to economic cycles. At the very time that farmers would be under stress and payments on agricultural loans in arrears, agricultural banks would also tend to be suffering deposit outflows. Without branches, these banks had no other good local loan opportunities or sources of deposits.

Over the years, the system of interbank deposits had evolved in a way that, to some extent, substituted for a system of geographically diversified banks. By maintaining correspondent balances in money center banks, smaller banks indirectly gained access to other loan markets. Money center banks competed vigorously for funds by offering competitive rates on interbank deposits. In turn, a correspondent relationship provided small banks with access to funds to tide them over bad times or merely to meet seasonal variation in loan demand (White 1983, pp. 65–74).

By its prohibition of interest payments on interbank deposits, the Banking Act of 1933 crippled the interbank system.[16] The act's framers feared that a competitive market for interbank funds would "siphon off" funds in rural areas and small towns to urban financial centers. Of course, this might occur in times of poor loan opportunities resulting from a local downturn. This process is an aspect of the diversifi-

[14]White (1986) argues that commercial banks were attracted to the securities business because of economies of scope in the production of financial services.

[15]For a fascinating account of the evolution of British merchant banks that illustrates this point, see Chapman (1984).

[16]Only the development of the federal funds market restored some financial integration to our fragmented banking system.

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cation provided by a competitive market for interbank funds. In times of financial crisis, however, money center banks actually increased their loans to their rural and small-town counterparts.[17] The federal guaranty of deposits was designed to provide financial stability without either competition or diversification. Fifty years of experience have clarified the flaws in this design.

There is thus a double symmetry in the banking act. On the one hand, the regulations offset the undesirable incentive effects of deposit insurance. On the other hand, deposit insurance offsets the destabilizing effects of the regulations. A combination of market forces and liability deregulation has undone the delicate balance. Like Humpty Dumpty, it is doubtful that we can put the pieces of the regulatory mosaic back together.

The value of financial diversification should not be underestimated. One need only compare the performance of the Canadian and U.S. banking systems in this century. Between 1920 and 1929, there were 6,008 suspensions and 3,963 absorptions and mergers in the United States. In the same period, only one bank failed in Canada. Contraction also occurred in Canada, but it did so by a 13.2 percent reduction in the number of bank *offices*. Similarly, there were no Canadian bank failures in the Great Depression. The number of Canadian bank offices declined by 10.4 percent, while 34.5 percent of all U.S. bank offices closed.[18]

The Canadian banking experience in the 1929–33 period is even more remarkable given that Canada and the United States experienced similar monetary shocks. Until Great Britain went off the gold standard in September 1931, Canada maintained a fixed exchange rate between its currency and the U.S. dollar. Since the Canadian dollar depreciated less than sterling after September 1931, Canada's national income and money supply were forced to contract in order to maintain external equilibrium at the new fixed exchange rate between the U.S. and Canadian dollars. Friedman and Schwartz (1963, p. 35) found that[19]

[17]"Critics charged that New York banks protected themselves in times of crisis and shortchanged their correspondents. The opposite was, in fact, true, and central reserve-city banks' loans rose in these periods, providing assistance to the interior banks. Interest rates on these loans did rise, but that was what any sound institution, commercial bank or central bank, would do" (White 1983, pp. 73–74).

[18]Compare Friedman and Schwartz (1963, pp. 352 and 457–58) and White (1984, pp. 131–32).

[19]Friedman and Schwartz present the following comparison. In the 1929–33 period, the U.S. money stock fell 33 percent while the Canadian money supply declined 13 percent. The decline in net national products for the two countries was nearly the same (53 percent versus 49 percent). The different behavior of velocity in the two countries explains the results. Velocity declined 29 percent in the U.S. but 41 percent in Canada.

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> though the required fall in both prices and income was sharp, the depreciation of the Canadian exchange rate permitted the percentage fall to be somewhat smaller than that in the United States. The stock of money fell sharply also, but by a much smaller percentage than in the United States. Even the smaller fall was, however, nearly one and a half times as large as the fall in any contraction in U.S. history since the Civil War except only the 1929–33 contraction. So it can hardly be regarded as minor.

The recent failures in 1985 of two small Canadian banks (Canadian Commercial Bank and Northland Bank) reinforce rather than rebut my thesis. Both failed banks were more like the typical U.S. rather than the typical Canadian bank. Neither of the two failed banks was widely branched, and they were specialized energy banks. The failures caused financial troubles for six of the remaining seven smaller Canadian banks, which had been experiencing deposit outflows in the absence of any obvious loan problems. There appears to have been a contagion effect from the failures. In other words, there were potential externalities to these two bank failures.

It is noteworthy, however, to see how the Canadian banking system dealt with the problem. The five major Canadian banks plus the next largest institution—not the Bank of Canada—provided loans to the troubled banks. Two of the affected institutions merged: Continental Bank with Lloyd's Bank and Mercantile Bank with the National Bank of Canada. The third-party effects of the bank failures were internalized by the remaining banks. Recognizing that all would suffer from the spread of the contagion effect, the stronger institutions were prepared to lend on the value of the sound assets of the weaker institutions. This is what economic theory would predict, of course. And this is the way our own clearinghouse system operated in the past to internalize the externalities of bank failures (Gorton 1984).

It would require a separate paper to deal with contagion effects more generally. A new literature is emerging, however, that disputes the conventional wisdom.[20] The new literature questions the existence of a contagion effect in the sense that one bank failure leads to the failure of other, sound institutions. The latter may experience brief runs, which is the justification for holding liquid reserves, but absent catastrophic macroeconomic policies, such as occurred in the 1930s, runs should not translate into failures of sound institutions.

[20]For example, see Benston (1986) and Rolnick and Weber (1982, 1985). For a succinct statement of the traditional view, see Gilbert and Wood (1986). Their paper clearly distinguishes between the problems of runs and of failures. Finally, see Kaufman (1987).

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Even with bad macroeconomic policy, the Canadian experience demonstrates the vitality of a sound, diversified banking system.

I am certainly not suggesting that in the absence of branching restrictions, the U.S. banking system would be composed of as few as a dozen or so banking institutions. There are good reasons to believe that in a competitive system, banking institutions would number in the thousands. First, the U.S. population is 10 times that of Canada, suggesting room for more competitors. Second, the Canadian system is the product of a public policy that, until the 1970s, actively discouraged the entry of new independent commercial banks. California's banking system is probably a better source for an order-of-magnitude estimate of how many banks would exist nationwide if branching were unrestricted. California, the most populous state, has a long history of statewide branching and liberal chartering practices. In mid-1985, there were 470 insured banks in the state. If we extrapolate from this number (assuming the same ratio of banks to population nationwide as exists in California), there would be over 4,000 independent banking institutions nationwide. It is fair to conclude that if competition had reigned in North American banking, Canada would have had many more independent banks and the United States far fewer.

In any case, geographical deregulation is now proceeding rapidly in the United States. We will probably detour through a system of regional banks on the way to one of nationally branched commercial banks. In the end, however, we will have arrived at the very system that Glass-Steagall sought to prevent: a system of financially integrated, diversified national banks whose pricing of deposits and loans reflects market interest rates.

As the Canadian experience in the 1930s illustrates, a nationally branched banking system with diversified assets can withstand even severe shocks, both real and monetary. In other words, diversification by itself can help solve the stability problem that deposit insurance was intended to address. In the last few years, banks' liabilities have been substantially deregulated. Geographical deregulation is proceeding rapidly and could be completed by decade's end.

There has basically been no deregulation of banks' assets, however, and the Banking Act of 1933 remains an effective obstacle to asset deregulation.[21] This obstacle remains, yet the delicately balanced system of regulations joined with financial safety nets has been radically, if not permanently, changed. If the banking system itself

[21]I am using "assets" broadly, referring not only to the marketable financial assets in a bank's portfolio but also to the lines of commerce in which a bank may engage.

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were to attain a self-reinforcing stability, this would take the pressure off the federal deposit insurance system as guarantor of the payments mechanism. In the presence of a more stable banking system, if deposit insurance were offered competitively, it would likely be no more widespread than portfolio insurance or insurance of municipal bond issues. As with other financial insurance, deposit insurance would be an option usually rejected. Most investors do not wish to sacrifice the necessary yield to immunize themselves from loss, and instead rely on diversification and sophisticated financial instruments (such as options and futures contracts) to protect themselves.

Competitive deposit insurance might take the form of performance bonds issued to depositors who place an extraordinary premium on safety. In such a system, however, insurance would truly protect individual depositors, not the payments mechanism itself. Similarly, the deposit insurance system would no longer be a destabilizing force whose incentive structure would need to be offset by a system of rigid regulations. Only time will tell how far along to a stable, competitive banking system market-driven changes alone can take us.

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Toward a Sound Financial System

William S. Haraf

Gerald O'Driscoll's purpose in his paper is to analyze how market incentives could substitute for regulation in controlling risk taking by depository firms. This is a useful purpose in that regulation is costly to both consumers and regulated firms. Moreover, it may not be possible to regulate risk exposures in any meaningful sense. Regulation, rather than restraining potentially risky activities, is more likely to shift such exposures into new and unpredictable channels. Particularly, in today's aggressive, trading-oriented banking environment, it seems unlikely that regulation can substitute for market discipline in controlling risk taking by banking firms.

Although there is a lot I agree with in this paper, I am also left with the feeling that it glosses over some thorny issues. In particular, I do not think that this paper, by itself, will convince skeptics that we can rely on market solutions for banking in lieu of banking regulation and the existing federal safety-net apparatus.

O'Driscoll begins by making three very important points that are worth emphasizing. First, banking law and regulation have inhibited diversification across activities and geographic markets and as a result have contributed to the riskiness of banking. Removing such obstacles to bank diversification would be very important in reducing the problem of bank failures. Second, it is unlikely that the deposit insurance agencies will ever be capable of implementing a truly effective risk-based premium structure. Third, failure resolution techniques that have extended the level of safety-net protection to large depositors, other creditors, and managers of banks, thrifts, and their holding companies have greatly exacerbated the moral-hazard problem from deposit insurance. There would be important benefits associated with eliminating this type of de facto coverage.

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Ultimately, O'Driscoll would like to see the federal government out of the deposit insurance business. He proposes a four-point program that would allow private insurers to enter the market gradually, primarily as suppliers of insurance coverage in excess of statutory maximums. Over time, governmentally provided deposit insurance would be phased out.

The central argument in O'Driscoll's paper is that a nationally branched banking system with diversified assets would "attain a self-reinforcing stability" that would take the pressure off the deposit insurance system "as a guarantor of the payments mechanism or the money supply itself." O'Driscoll claims that with such a system it would be feasible for deposit insurance to be supplied privately. The evidence he cites is the Canadian banking experience during the 1930s, when there were no bank failures. He concludes that such a system "can withstand the severest shocks, both real and monetary."

This is an important and surely controversial argument. Unfortunately, the evidence in the paper on this critical point is weak. O'Driscoll does not provide information about other factors that could have influenced comparative failure rates, such as capital levels of Canadian and U.S. banks or monetary policy. Between 1929 and 1933, the U.S. money stock was permitted to decline by one-third, while the Canadian money stock fell by 12 percent. Although part of this difference might plausibly be attributed to differences in banking structures in the two countries, it is also likely to have been related to differences in monetary regimes. A full analysis of the effects of bank structure on failure experience would systematically examine the experience of a number of countries operating under distinct monetary and regulatory regimes.

Early in his paper, O'Driscoll recognizes that the feasibility of a system of private deposit insurance depends on whether the banking system is subject to contagious runs. Although he does not make the argument explicitly, O'Driscoll must believe that the risk of contagious runs is manageable in an environment with a nationally branched and well-diversified banking system.

Some scholars have recently argued that the risk of contagious bank runs has been exaggerated, irrespective of further product and geographic market diversification. Studies of bank runs prior to the establishment of federal deposit insurance by George Benston and George Kaufman (1986), Phillip Cagan (1965), Anna Schwartz (1985), Michael Bordo (1985), and Arthur Rolnick and Warren Weber (1983) lead to several important conclusions. First, true contagious panics have been rare. There are many periods in U.S. and British history in which bank failure rates were high, but widespread panics did not

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occur. Second, the panics that did occur took place either in the absence of a lender-of-last-resort mechanism or as a result of a major failure of the central bank to act as lender of last resort. Third, these panics did not generally precipitate economic downturns, although they often accompanied them.

In reviewing this evidence, I conclude that a system in which depositors are subject to greater risk of loss than they are today is probably more vulnerable to disruptive episodes—episodes in which a bank failure triggers runs on other banks perceived to be marginal. The risk of contagious runs on the banking system as a whole is small, provided such episodes are handled properly by the authorities. This involves managing failures in such a way that the liquidity of depositor accounts is preserved even if depositors are subject to losses and that solvent but illiquid banks have access to necessary reserves, preferably through open market operations but if necessary through the discount window.

Nonetheless, I doubt that private deposit insurance would become an important and permanent feature of our financial system even if O'Driscoll's proposed program were implemented. That is not to say there would be no private insurance of deposits; rather, there would be no extensive coverage.

Even without contagious runs, the banking system would be subject to macroeconomic disturbances—monetary shocks, velocity shocks, price-level shocks—that could affect a broad group of banks simultaneously. Although a bank system that is more diversified, both geographically and in terms of activities, would be less exposed to regional and industry shocks, such macroeconomic shocks are a nondiversifiable risk from the perspective of a private insurer, and they represent potentially enormous exposure.

Macroeconomic volatility over the past decade has been an important causal factor in explaining the rising rate of bank and thrift failures. Many of today's problems in financial markets are the result of the cycle of inflation and disinflation that began in the 1970s and of the accompanying volatility of interest rates and real returns. A private deposit insurer is simply not capable of insuring against such risks.

Other problems are posed by the transition to privately supplied deposit insurance. As long as a federal deposit insurance agency is the principal insurer, regulators presumably will not be willing to allow private insurance firms to determine when insolvent banks and thrifts should be closed or reorganized. Experience over the past decade, however, clearly shows that the extent of deposit insurance losses upon failure depends chiefly on how quickly insolvent firms

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are closed. Just as the loss exposure of a fire insurance underwriter depends upon the abilities of a community's fire fighters, the risk of loss to private deposit insurers would depend upon the ability and willingness of regulators to quickly close insolvent firms.

The deepest of our problems with the deposit insurance system result from the unwillingness of regulators to promptly close insolvent firms. Particularly when a large firm is in trouble, or when problems are widespread in an industry or region, the regulators have proven reluctant to incur the short-run disruptions and criticism that would result. Private insurance is not feasible unless the insurer has the power to close insolvent firms or to withdraw coverage, and I believe it is unlikely that the government would grant such powers to private insurers.

Another important transition problem relates to capacity constraints within the insurance industry. Presently, insured deposits amount to well over $2 trillion. Even if deposit insurance coverage is rolled back so that potential exposure is no more than, say, 2 percent of total deposits, this amounts to a staggering sum. One of the largest insurance packages ever assembled was designed to insure against losses from a nuclear accident. It took federal sponsorship and approximately 30 years of effort to bring the insurance pool up to $750 million.[1]

An attractive alternative to private insurance that may be more feasible to implement is a subordinated debt capital requirement. Subordinated notes play a role similar to that sought from private insurers: If losses exceed a bank's equity capital, note holders suffer a loss, just as a private deposit insurer would. The note holders, in effect, are "insuring" deposits up to the amount of their financial investment. Holders of such debt cannot withdraw their funds in times of trouble, yet they have incentives to provide important market discipline. Since they do not share in the higher returns that may result from risk taking, they are more inclined than stockholders toward conservative operations. To the extent the debt is rated and priced to reflect risk, it can provide a market signal of asset quality. A subordinated debt requirement would also not be particularly burdensome for healthy banks, since the marginal cost would be the difference between rates on uninsured notes and insured deposits on an after-tax basis.

In sum, I agree with O'Driscoll's emphasis on the value of diversification of activities and geographic markets for reducing risk in the U.S. banking system, but I am skeptical about the viability of

[1]See FDIC (1983) for further discussion of this point.

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private deposit insurance, at least on a large scale. The federal deposit insurance system will be with us for some time. The important thing is to eliminate burdensome regulations that make banks more vulnerable to failure, as well as to correct the gross distortions resulting from current forbearance and failure resolution policies. The more bank and thrift regulators rely on market disciplines and prompt closure of firms that are insolvent on a market-value basis, the less regulation will be needed to protect the deposit insurer against losses.

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A Transaction Cost Analysis of Banking Activity and Deposit Insurance

Susan Woodward

Introduction

In neoclassical price theory the firm is a black box and there are no banks. Into the box go labor and capital and out come products; the apparatus is driven by wealth maximization and governed by the laws of returns. At the individual firm level, activities are guided by market prices. If prices direct the patterns of specialization and exchange, what does the black box contain? What does "the firm" do? What does the banking firm do?

The suggestion of Ronald Coase (1937) that firms were alternatives to markets and served to reduce and control transactions costs remained sterile until further suggestions came forth as to the nature of these transactions costs. What can make markets so expensive that spot exchanges are abandoned and replaced by restraining agreements organized in institutions called firms? Two possibilities have yielded fruit—the costs associated with ascertaining quality and with negotiating price. Explicit consideration of these costs has enriched the theory of the firm and given us insight into the forces that determine what assets the firm owns, how ownership is structured, how firms are financed, the assignment of liability, and other aspects of corporate organization as well.

The early explorers of transactions costs set out on two very different expeditions. The first expedition went armed with the notions of moral hazard and adverse selection; it headed off in the direction of insurance and risk and ventured successfully into generalized

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principal/agent conflicts. The implications of informational asymmetries for behavior and market viability explained various aspects of insurance markets, the presence of teamwork, some firm financing decisions, and organizational features of the firm addressing conflicts of interest between owners and managers, inside owners and outside owners, and liability assignment.

The second expedition headed off from industrial organization to hunt for explanations as to why firms vertically integrated, and it found a powerful answer: the presence of quasi-rents among mutually dependent assets can result in high costs of negotiating the division of those quasi-rents. These potential costs can not only explain common ownership of assets and various aspects of the organization of ownership but also the motivation for other types of implicit and explicit long-term contracts, some of which are constraints on the operation of markets.

This second idea is referred to as "holdup." The concept (but not the term) was introduced by Alfred Marshall (1936) when he described the problems faced by a steel mill that located near a public power company, counting on the delivery of power at a given price. Once the mill's capital costs were sunk, the power company could raise prices, confident the mill would continue to produce and could not move. Marshall called the return to the mill's fixed costs a "composite quasi-rent," because it depended on the continued association of the mill and the power plant. Marshall did not develop the concept as a force determining features of firms and contracts, however, but said the conflicts would be resolved by appeal to gentlemanly behavior and to doing what was right.[1] Later Oliver Williamson (1985) and others would recognize that the power company could hold up the mill and emphasize the role of contracts in averting holdup.

Banks are firms, and this paper sets out to discuss the organizational features of banks in terms of the costs of determining quality and price as Alchian and Woodward (1986) did for firms generally. Because banks mediate the payments system, they are special and consequently merit special attention.

Sources of Firm-Specificity in Bank Assets

Some of the resources firms use are owned by the firm directly, and some are owned by other parties who rent the services of these assets to the firm, as employees rent labor to the firm, for example. The firm will either own or have long-term contracts with those

[1]On the concept of the "holdup," see Marshall (1936, pp. 453–54, 626–27).

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resources that are relatively more mutually dependent, that is, susceptible to either morally hazardous exploitation or to holdup. It is this kind of mutual dependence that makes assets "firm-specific." Firm-specific assets are those assets that are worth more to the firm than to any other party. By contrast, assets that are general and easily replaced at the same price are not firm-specific, and neither long-term contracts nor ownership integration is necessary for their most efficient use. There are two properties assets can possess that will cause them to be mutually dependent and thus firm-specific: vulnerability to moral hazard and vulnerability to holdup.

Vulnerability to moral hazard is partly a question of monitoring costs and partly a question of a property called "plasticity" by Alchian and Woodward. The term "plastic" indicates that the set of choices for how an asset is used and maintained is wide, and that it is difficult for those outside the firm to second guess the decisions regarding their use made by those inside the firm. Examples of plastic assets are trucks and copying machines, which can be maintained either well or badly, somewhat undetectably. They are consequently vulnerable to moral hazard and are more likely to be owned than rented because ownership internalizes the costs, aligns the incentives, and is cheaper as a result. Lawyers can choose a low-risk strategy of routine contract law or can take a personal injury case on contingency, and consequently can have very plastic human capital. The assets of research and development firms, laboratories and teams of researchers, are very plastic, because the array of opportunities for their employment is very broad. Examples of implastic production are heavy manufacturing and oil pumping (but not exploration) because these assets offer little in the way of opportunities to (a) increase the variance of possible outcomes, (b) turn the assets into personal consumption (through undetected shirking or use for personal aggrandizement), or (c) be stolen.

Holdup vulnerability can result when assets are very implastic. Implastic assets such as those in heavy manufacturing often have few attractive alternative uses and are thus vulnerable to holdup. But any investment that is particular to a given team of assets will have the same kind of vulnerability. For example, a sign that heralds "Bob's Burgers" is useful only to Bob. It would never make sense for a party outside the firm to own the sign, because if Bob refused to pay the promised rent, the owner would have no alternative use for the sign. The value of the sign depends on the profitability of the hamburger stand, which is at least partly under Bob's control. Bob could claim he has fallen on hard times and could use the hard times as an excuse to cut the rent in half, and the sign owner would have no recourse

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except litigation or strategic refusal to deal. Such costly negotiations are avoided if Bob owns the sign. Owners of such team-specific resources will seek protection from holdup, and although the usual solution will be common ownership, long-term contracts are an alternative.

Bank assets consist primarily of loans "produced" by the owning bank. The most important factor determining why a given loan is worth more to one bank than another, and consequently why the bank owns that loan, is that the originator of a loan has learned details about the loan that could only be learned by another party at some cost. The source of the idiosyncratic or "impacted" information is the borrower. Borrowers know more about themselves than banks know about them, and it is costly for the bank to become informed. The borrower has an incentive to represent himself as more creditworthy than he is, and he will expend resources signalling his creditworthiness, sometimes honestly and sometimes not. Banks expend resources evaluating the data they collect about borrowers. The cost of this evaluation is reflected in the terms of the loan.

The more idiosyncratic a loan is, the less likely it is that the bank will sell the loan to another institution, because the assessment the second institution would undertake before the sale is costly, just as was the origination. The second institution will not just accept the assessment of the first regarding the loan. The first institution can get a higher price for the loan by representing it as a better quality loan than it is. The second institution will protect itself from this incentive to misrepresent the loan by evaluating the loan itself. Thus, the originating bank creates the asset, and the value differential arising from information asymmetries makes the loan bank-specific. Others, especially Leland and Pyle (1977) and Campbell and Kracaw (1980) have also emphasized private information in theories of the banking firm.

Against the impacted information that makes loans bank-specific looms the bank's portfolio problem. Bank loans involve some risk that is diversifiable. There are several ways nonsystematic risk can be diversified. First, if a bank has publicly traded equity shares, the risk is borne in diversified portfolios via the stock market, as is the risk of other large firms. Second, banks could be organized with national branches. Since a large component of lending risk, especially in real estate and agriculture, is regional in nature, nationwide branching can go a long way toward creating a diversified loan portfolio. Third, banks can trade loans, either directly, or by selling them to intermediaries who resell them. If full diversification is feasible, interest rates on loans will be set so that they compensate the lender

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for the time-value of money, for the nondiversifiable risk borne, and for gathering the desired information.

In U.S. banking institutions, various geographical restrictions on branch banking impede the first two solutions to the bank portfolio problem. Branch banking laws in some states constrain banks to be small and thus limit their access to the market for publicly traded equity. The branch banking laws also preclude diversification via national branching, and in some states even statewide branching restrictions admit little diversification. What remains is securitization, and surely one of the reasons Fannie Mae (the Federal National Mortgage Association) and Freddie Mac (the Federal Home Loan Mortgage Corporation), the two government-sponsored firms that comprise the lion's share of the secondary market in mortgages, thrive as institutions is that they are conduits for reallocating regional components of risk. As such, they are explictly a means around the Glass-Steagall Act preventing banks from underwriting most securities and are implicitly a device to make the barriers to branch banking less costly.

Because of the impacted information in many loans, trading loans may be inferior to interstate branching as a means of diversification. Potential buyers would want to learn whatever the originator of the loan learned in order to make the loan in the first place. This learning process is appropriately regarded as one of the costs of the operation of markets. If either national branching or publicly traded equity is feasible, these routes will dominate when information transfer costs are large. When there are other avenues for risk spreading, costs absorbed in trading loans are, from a social point of view, pure loss. Economies are realized when a single institution originates, administers, and concludes a loan contract. For those loans with substantial idiosyncrasies and for which information costs are large, secondary markets will not arise spontaneously, and it is efficient that they should not.

Costly information also plays a role in determining which loans a given bank will originate, more particularly why a bank is more likely to make loans to its own depositors than is another bank. The information gathered in managing a customer's demand deposit is valuable in determining the terms on which to lend to that customer. The bank could, of course, sell the information to another bank. But if the information transfer process is costly, that is, if it is cheaper for the depositor's own bank to evaluate his loan application than for another bank to do so, a pattern will emerge in which demand depositors choose a bank (to manage demand deposits) mostly on the basis of

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convenience, and bank loan portfolios consist primarily of loans to depositors.

Apart from loans, there are few other assets used by banks that are at all firm-specific. Banks rarely have long-term contracts with employees, frequently rent office space, and seldom hold assets other than loans and securities. The major forces driving firm-specificity of bank assets are the information assymmetries present once loans are made and, to a lesser degree, the information complementarities between deposits and loans and between past loans and future loans.

The Bank as a Corporation

When firm-specific assets are large in total value, the limited wealth and risk aversion of investors call for organizing the firm so that assets are owned in common by many shareholders in a corporation. Corporations often have managers who are not owners, owners who play no role in management, and some debt financing. As a result, conflicts of interest can arise among the shareholders, between shareholders and managers, between shareholders and depositors (and bondholders), and when a clearinghouse or deposit insurer is present, between this agent and shareholders.

Conflicts among Shareholders

Although only a few of the thousands of banks in the United States have publicly traded shares, a substantial fraction of all bank assets are in such banks. Transferable shares lower the cost of administering a pool of resources because the personal decisions and beliefs of individual shareholders are accommodated through trading of the shares and need not affect the production decisions of the firm. Banks are no exception.

Corporations limit their liability to creditors to accommodate transferable shares. Without limited liability, the creditworthiness of the firm would depend not just upon the assets of the firm but on the personal assets of the shareholders as well. By limiting the liability of the firm to the assets of the firm itself, all concern regarding the identity and wealth of individual shareholders is eliminated, and it is eliminated for both shareholders and creditors. For the firm with less than fully transferable shares, limited liability can be a desirable device for laying off equity holders' risk. But small, closely held firms extend liability to shareholders as well as limit it. Indeed, extended liability is observed today only among firms that do not have traded equity. Apparently, the moral hazard costs of limiting liability frequently outweigh the risk-spreading opportunities it offers for many firms whose organization precludes publicly traded shares.

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Banks were among the last firms to limit liability. Prior to the introduction of deposit insurance, the willingness of bank owners to assume personal liability for their bank's soundness doubtless increased depositor confidence and reduced incentives for bank risk-taking. Depositors expressed interest in the size and composition of the wealth of the owners of their bank, and they doubtless were comforted by evidence that their bankers were rich and conservative. Even into the 1950s, the liability of many bank shareholders extended to double the par value of the stock, and amounts due as a result of their extended liability were collected from many bank shareholders during and after the Great Depression.

It has been suggested that banks return to extended liability for their shareholders in order to discourage their undertaking large risks under the umbrella of deposit insurance.[2] But today, such a policy is a bad idea. Publicly traded shares and extended liability are not compatible, so precluding limited liability would be a serious impediment to large banks' attempts to raise equity capital from a large number of shareholders. To inhibit risk-taking by small banks, it makes more sense to employ risk-adjusted deposit insurance premiums based on the extent of equity capital or to increase capital requirements directly. Increasing equity capital requirements explicitly extends the amount for which shareholders are liable. In contrast, the additional protection gained by the deposit insurer via extended liability would depend on the wealth of bank owners, and could conceivably motivate personal "capital requirements" for bank owners in addition to capital requirements for the banks themselves.

Conflict between Managers and Shareholders

The conflicts of interest between managers and stockholders of banks are evidently not of paramount importance. As evidence of this, we observe first, that among large banks, ownership of equity is very diffuse. Second, branches are managed by individuals with no equity interest. Many bank practices are designed precisely to provide the information necessary to make bank activities easy to monitor, both for the bank equity holders and for bank regulators. Even the practice of requiring monthly payments on loans serves to provide a monthly signal of the status of a loan. Despite the fact that

[2]Such proposals call for "unlimited" liability, a term I avoid because, if nothing else, shareholders' wealth limits liability. For a more extended discussion of limited liability, see Woodward (1985).

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bank assets, many of which are fungible,[3] are by implication very plastic, the costs of monitoring them are low because the transactions are easily recorded and the excuses for failing to record them are few.

Conflict between Shareholders and Creditors (Depositors)

Prior to the introduction of government-supported deposit insurance, stockholders of a bank stood in relation to depositors just as the stockholders of nonfinancial firms stand to their creditors. In the United States today, deposits are insured by the FDIC or FSLIC, and depositors are no longer concerned about how much equity capital their bank has. Prior to the introduction of deposit insurance, depositors would look to the capital of the bank for security, and as a result, banks had much larger amounts of equity—roughly 25 percent of assets as opposed to today's regulated bank with 5–6 percent equity.

While the corporate finance literature has summarily rejected tastes (for example, risk aversion) as a feature explaining debt/equity ratios for nonfinancial corporations, it seems difficult to imagine that the nature of demand deposits is not primarily driven by the desire of depositors to have an easily valued asset to use for payments. Even very wealthy individuals do not, and do not want to, write checks on an ordinary stock mutual fund. And in the allegorical histories we use to teach banking, the primary motivation for the existence of banks is deposits. We start with a warehouse that takes deposits and issues receipts, that then discovers it can also make loans, rather than the reverse.

Ben Bernanke (1983) has argued that banks were originally organized with deposits and equity rather than as mutual funds because lending was too morally hazardous to organize with what would be almost completely (financially) disinterested managers (as would be the case with a mutual fund) and that the equity served as a signal to depositors that someone, the equity holders, had a stake in assuring that the bank was well managed. I reject this argument for two reasons. First, if lending were indeed so morally hazardous and difficult to monitor, the monitoring costs would preclude banks with diffuse outside uninvolved equity holders as well. In fact, the large publicly traded banks are very widely held and are usually managed by persons who have little financial interest in the bank. Second, if the

[3]A fungible asset is one that can be replaced at low cost with another that is virtually identical. Treasury Bills and grain are fungible assets. Bank loans are thus not fungible, because they are not identical and are costly to trade.

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driving concern were the principal/agent problem and not the uncertainty of the value in the account, then ordinary mutual funds would compete as successfully with conventional demand deposits for transaction balances as do money market mutual funds. But there is little interest in ordinary mutual funds as checking accounts.

The operation of mutual banks, the vestiges of which remain today, also sheds light on why banks are not organized as mutual funds. Mutual firms are distinguished from ordinary firms in that the customers of the firm own it. Identifying exactly who is a customer of a bank is somewhat more subtle than identifying the customers of a shoe store, however, as both depositors and borrowers are in some sense customers. Mutual banks are organized with depositors as equity holders. One cannot be an owner without making a deposit, and one cannot withdraw the deposit without ceasing to be an owner. In the absence of deposit insurance (the condition under which the deposit mutual evolved), the combined accounts of the depositor (the deposit plus the share account) made the depositor a shareholder in a 100 percent equity loan company, essentially a mutual fund. The risk/return outcomes to the depositor/equity holders were exactly the same as they would be to shareholders in a mutual fund that held the same loan portfolio as does the mutual bank. So why the separate accounts?

Deposit mutuals and mutual funds have one important common feature: assets are owned and controlled by depositors. Thus, assets will be managed in their interest. Given that both total returns and control are identical, there are two reasons why the interest might be segregated into deposit and equity accounts. First, if the assets are risky, dividing the interest into a less risky and a more risky portion leaves the less risky portion a more convenient account on which to write checks, and thus lowers personal transaction costs. Note that the "checkable" mutual funds (which have only a single account) hold only very low risk securities, another way of accommodating check writing. Second, if the assets are nonfungible (as are the loans of most ordinary banks and mutual banks), separating the accounts into a fungible part, on which checks can be written, and a nonfungible part, against which residual losses and gains can be booked as they are realized, accommodates both check writing and the bearing of the risk. An important feature that distinguishes the equity interest in mutual banks from ordinary, noncheckable mutual funds is that the equity is nonfungible. The equity cannot be sold except back to the bank itself, and one cannot cease to be an equity holder without withdrawing one's deposit.

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Mutuals may have solved some principal/agent conflicts in banking (again, in the absence of deposit insurance) but they created two problems that do not arise with banks organized as joint stock companies (ordinary corporations). First, tying the deposit and equity together inhibits efficient risk allocation because it takes away a degree of freedom in structuring portfolios. (Of course, the introduction of deposit insurance transforms the conflicts between depositors and equity holders into conflicts between the deposit insurer and the equity holders, to be discussed later.) Second, because the equity is nonfungible and tied to the deposit, depositors pessimistic with respect to the bank's prospects will remove equity and deposit together and go to another bank. This problem remains even with deposit insurance.

Conflicts between Shareholders and Customers (Borrowers)

Banking activity can be organized in a mutual firm not only with respect to the liability side with depositors as owners but also with respect to the asset side with borrowers as owners. The largest such organization in the U.S. economy, the Farm Credit System, does not take deposits, but funds its lending activities entirely through securities issues. Loan mutuals are potentially even more troublesome as a risk-spreading vehicle than are deposit mutuals, however, since most of the risk faced by a lending institution is generated by its loans, not its deposits. The more correlated are the fortunes of the borrowers, the worse is a mutual loan company in terms of diversifying risk because the borrower's return on his investment in his borrower mutual is highly correlated with the rest of his wealth.

One factor that may motivate loan mutuals is the desire for trust between borrower and lender. The borrower knows himself to be an honorable fellow and knows that he will not take his loan and bet it in the options markets instead of, for example, buying seed (the pretense for the loan), even when it is in his interest to do so. But the borrower fears that if his lender does not know him personally, the lender will assume that greater moral hazard is present in the loan than would be suspected if he knew the borrower well. The borrower thus sees a potential to be "held up" if his personal fortunes decline temporarily. When the borrower falls on hard times, other lenders less familiar with him will lend to him only on very unfavorable terms. Knowing this to be true, even the long-time lender could charge more than is necessary to cover the risk he knows is present, which is less than an unfamiliar lender would expect. Anticipating this holdup, borrowers could be motivated to organize a mutual to protect themselves.

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This desire for familiarity and acknowledged commonality of moral values (keeping one's word to buy seed instead of speculating in cocoa futures contracts) may also help explain the support in the agricultural states for locally run banks. Farmers perceive (somewhat correctly) that much of the risk they bear is not under their control and that an inability to keep up their loan payments is often not a reflection of incompetence or sloth but of bad weather or unfavorable government policy. These borrowers want to ensure that those who lend to them do not suspect their intentions, and if the farmers are well known to their lenders, their intentions will not be suspect. One way to achieve this is to ensure that their banks are locally owned and operated.

Conflict between Shareholders and Deposit Insurers—The Microeconomic Level

Deposit insurance transfers the risk of losses on the bank's portfolio (in excess of the bank's equity) from the depositors to the deposit insurer. Because low risk is one of the features depositors seek in a bank account, it seems plausible that deposit insurance could emerge privately as a device to accommodate deposit accounts that are easy to value.

Insurance markets, especially for commercial insurance, are very old, dating from at least the 13th century, when "sea loans" were insured.[4] Indeed, this insurance was designed to make loans to different ships' owners closer substitutes, more fungible, more marketable, and easier to trade in a secondary market, just as many forms of mortgage insurance and other "credit enhancements" serve to make certain instruments more liquid today. But the institution closest to deposit insurance that emerged without government support was the clearinghouse, which was more like a central bank in that its focus was on ensuring the liquidity of the banking system rather than on shifting risk from depositors to insurers.

On the microeconomic level, the last decade has amply demonstrated the problems of insuring the deposits of banks. Deposit insurance is, as is all other insurance, subject to moral hazard. The greater the coverage (with respect to banks, the greater the fraction of assets funded by insured deposits as opposed to equity or noninsured debt), the greater the potential moral hazard costs. Macroeconomic policies of the 1970s resulted in historically high nominal interest rates and a nearly universal deep insolvency of thrift institutions (on a market value basis) by 1981. The fall in interest rates since that time has

[4]See de Roover (1945) for detailed descriptions of these early institutions.

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recouped much of the loss, but even now many thrifts and commercial banks are operating with seriously eroded equity, and a significant fraction of the thrifts is operating with negative or zero equity. From this experience the problems associated with insuring the deposits of bankrupt or nearly bankrupt institutions have been amply demonstrated, and as a result, they are well understood and widely appreciated as empirically significant.[5]

Deposit insurers attempt to control the moral hazard through an elaborate regulatory framework. The regulations include limitations on the amounts and nature of assets that banks and thrifts can hold, various balance sheets constraints, capital (minimum equity) requirements, and restrictions on other forms of business that banks can do.

But the regulations, like most contracts, are written in terms of accounting data, and banks must heed only the letter, not the intent, of the regulations that accompany deposit insurance. Any exploitation of the rules (such as accounting conventions that do not reflect the true value of assets) is regarded as fair game. Any hole in the regulations (such as the failure of the deposit insurer to require explicit recognition of standby letters of credit as liabilities) is exploited with alacrity. Given the moral hazard costs of deposit insurance, the costs it has recently imposed on the FDIC and FSLIC, and the suspicion that because deposit insurance is government supported it is more exploited than private insurance would be, two difficult questions arise: First, are there alternative ways of organizing deposit insurance (such as less than full coverage of deposits, or privately provided deposit insurance) that would be less costly? Second, are there any reasons why government-supported deposit insurance might be efficient despite the moral hazard that accompanies it?

Deposit Insurance as an Alternative Market Organization—The Macroeconomic Level

The macroeconomic problem that deposit insurance addresses is the illiquidity of bank assets. Traditionally, bank liabilities have consisted primarily of demand deposits,[6] which banks guarantee to be fully liquid. But their assets consist of loans that are not callable and that are too small, idiosyncratic, and "information impacted" to be marketed at low cost. If bank assets, like money market mutual fund assets, consisted of marketable fungible securities, then banks

[5]See Barth et al. (1985) for a discussion of the recent FSLIC crisis.

[6]According to the *Federal Reserve Bulletin* of November 1987, the total assets of the U.S. commercial banking system were $2.7 trillion, of which $1.9 trillion was funded with insured deposits, although only $573 billion of these were transaction deposits.

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could, as do the mutual funds, buy and sell securities to accommodate fluctuations in the level of deposits. The essential difference is that the loans held by banks can only be sold after an evaluation process; this process is costly, and its cost will be reflected in the price the bank gets for the loan. From the originating bank's point of view, paying another institution to evaluate the loan is a losing proposition because the originating bank already performed this function and absorbed the cost of doing so.

Origination or reevaluation costs make many loans "bank-specific." Given the nonfungibility or bank-specificity of most bank assets, it can be argued that a method of organizing bank activity that would avoid, under some circumstances, the necessity of placing bank assets "in the market" could be potentially less costly than market alternatives. That is, it is possible that market solutions to the bankruptcies, both real and imagined, that are caused by occasional macroeconomic disturbances are simply more costly than government-supported deposit insurance. Let us consider two extreme cases.

Case #1: The "Irrational" Run

A banking system suffering from an irrational run is one in which the banks are not truly insolvent (that is, bank assets are worth more than bank liabilities), but some event has alarmed the depositors and propelled them to attempt to withdraw their funds. Apparently information is costly and depositors do not know that their banks are not insolvent. Consider the difference in the costs of this disruption with and without deposit insurance or a lender of last resort.

If there is no deposit insurance, banks must attempt to sell their loans in order to deliver on promises to liquidate demand deposits. This sale of loans is costly. Indeed, these costs could make the difference between the bank having or not having enough assets to cover all deposits. The problem is exacerbated by the "me-first" rule with respect to withdrawals. Because the deposits are withdrawn on demand, and the amount withdrawable depends only on the amount deposited (plus, perhaps, some accrued interest) and not on the value of the bank's assets (since no easy assessment of their value is available), the depositors at the head of the line are more likely to get all of their money than are depositors at the end of the line. Thus, the depositors run to withdraw and create pressure to sell assets even more quickly and at even larger discounts.

An even greater risk is the possibility that the disruption of the payments system that attends a systemic run and the massive effort to revalue bank assets may result in a decline in real economic activity (depression). Transactions come to a halt because the institutions

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that have a comparative advantage in executing them must turn their attention to liquidating and revaluing their loan portfolios, and the run reinforces expectations that borrowers will not be able to repay.

If there is an institution ready to lend to the banks to accommodate depositors' desires to withdraw their funds, the costs of selling the loans, as well as a collapse of the payments system, can be avoided. This accommodation could be provided by either a deposit insurer or a central bank so long as either is empowered to print money (or to advance unlimited reserves, which is functionally equivalent). An institution with the power to print money will be able to meet a run of any size. An institution without this power, such as a private insurance company, faces the possibility that it too will be made insolvent by the run if its reserves are finite and less than the amount insured. This possibility reveals that deposit "insurance" is not insurance in the same sense as, for example, life insurance. Its success does not depend so much on the law of large numbers (insuring occasional, isolated bank failures) as on the power to head off or accommodate a systemic run, possibly requiring the power to print money.

Once the depositors calm down, they redeposit their cash balances at the banks, the banks repay their loans to the central bank, and business continues with no necessity of selling the loan portfolio. Clearly, if this is an isolated transaction, the social costs are lower if the central bank advances the system the cash and the collapse is averted. These benefits must be traded off against the increased probability of true insolvencies that result from the moral hazard costs of deposit insurance and banks' exploitation of it.

Case #2: A Systemic Insolvency

When a run is motivated by a true insolvency rather than a scare, the central bank must not merely accommodate the run in order to maintain the liquidity of the banking system, it must also absorb the losses to the degree that they invade deposits. If any losses were to be forced on depositors, the "me-first" rule would induce the depositors to run.

There are at least two ways these losses could be absorbed by the central bank. First, it could print the money to make the deposits good, and society would bear the loss in the form of inflation. Second, taxes could be collected to provide the funds. In both cases, the losses that exceed bank equity are borne by society at large rather than by individual depositors, as would be the case without deposit insurance. With either arrangement, there is no associated col-

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lapse of the payments system with government-supported deposit guarantees.

To say that depositors are not the best candidates to provide the market discipline to the banking system is not to say that no such discipline is desirable. On the contrary, the most important reason to ensure that there is equity in the banking system is to impose market discipline. In a true insolvency, the services of the market will be needed to revalue bank assets and to recapitalize the banks. Giving time to the banks so that they get more for their assets is, of course, beneficial to the banks, but for society as a whole it is not clear how much forbearance is worth it. The experience from 1983 to 1986 with the FSLIC suggests that delay in closing bankrupt institutions can increase the costs of closure considerably. A tradeoff must be made between giving the banks enough time to avert a collapse of the payments system but not so much that they can double their bets, as is in their interest, while still insolvent.

Is the institution described here truly deposit insurance, or is it a lender of last resort? It is both, and functionally the two institutions are the same. Deposit insurance is not true insurance. It does not so much diversify away risk as change the way in which risk is borne. The alteration does not eliminate the necessity for society to absorb losses by individual banks or by the banking system, but it does allocate the risks in such a way as to avert a collapse of the payments system when depositors suspect banks may be insolvent. Explicit government guarantee of deposits reassures depositors that if the bank cannot deliver on its deposits, the government will. Lenders of last resort reassure depositors that if there is a run, the lender of last resort will provide the banks with funds to make deposits good. The point of both systems is to avert runs and the attending collapse of the payments system.

When making the decision about the best design of public institutions, it is necessary to weigh the following costs: Without deposit insurance, occasional irrational runs will result in costs associated with liquidating loan portfolios under pressed conditions. With both irrational runs and true insolvencies, there may also be a decline in real economic activity due to a collapse of the payments system. With deposit insurance, moral hazard costs must be borne by the deposit insurer. Which regime is less costly is an empirical question. The essential point to keep in mind is that banks fixed the price of deposits in the first place because it was so costly to value the loans. Having once established that the high cost of market mechanisms precluded demand deposits with flexible prices (such as those of money market

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mutual funds), it seems doubtful that allowing runs to force immediate market valuation of all bank assets is very often a fruitful exercise.

Deposit Insurance Forever?

The primary problem addressed by deposit insurance is the illiquidity of bank loans, that is, the high transaction costs often associated with selling loans to other institutions. Because they hold instruments that are cheaply marketed, money market mutual funds face no such problem. They can offer depositors liquidity with no vulnerability to runs because their assets are liquid and always carried at their market value. The rapid rise and fulsome success of the money market mutual funds demonstrate that it is possible to have checkable deposits backed with marketable assets. Once there are sufficient liquid, low-risk, low-transaction cost instruments in the economy to fund the payments system, there is no reason not to move to a set of institutions that use this market mechanism (which is cheap) rather than deposit insurance (which was adopted because the market mechanisms formerly available were costly). Debt that is cheaply marketed could be used to fund transaction accounts (demand deposits) and "information impacted" loans would be held by loan companies and financed with ordinary debt.

The success of this transition depends, however, on correctly pricing deposit insurance, that is, on ending any subsidies associated with it. While some observers argue that deposit insurance is not merely mispriced (due to not being risk-adjusted) but also underpriced, it is still the case that insured deposits now fund a smaller fraction of nonfinancial debt (the sum of government, household, and business debt, netting out institutions) than they used to. In 1960, net insured deposits (insured deposits less bank holdings of government debt, government-guaranteed loans, cash, and reserves) were 10.6 percent of nonfinancial debt. By 1975 this figure had risen to 27 percent, but by 1985, fallen back to just under 20 percent[7].

Conclusion

This paper starts with the premise that banks are in the transaction business and that banking institutions are designed to minimize transaction costs. Banks find their comparative advantage in collecting and assessing information and writing loan contracts. But because informational asymmetries prevail, the banking institutions of capitalism do not consist of "free markets" but rather of markets that are

[7]*Economic Report of the President*, 1986, p. 190.

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free to impose restrictions upon themselves when they regard it as appropriate, that is, when those restrictions are cost minimizing. "Free"—that is, unconstrained—markets are not always the least expensive way to organize transactions, as Coase's view of the nature of the firm has argued. In particular, I have offered some suggestions as to why deposit insurance might be an efficient institution despite the moral hazard costs that it entails, and I have discussed the implications of the nature of the various transaction costs in banking for the future of deposit insurance.

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The Role of the Federal Reserve in Reserve Requirement Regulation

Mark Toma

Traditionally, economists have highlighted the macroeconomic consequences of reserve requirement regulation. A public-spirited central bank may impose reserve requirements to increase its control over the money supply. For a given money multiplier, the monetary authority controls the money supply through its production of reserves. Although the money multiplier may change over time, its variability decreases as the reserve requirement approaches one.

The traditional approach ignores the possibility that banks may be able to evade reserve requirement regulations by providing customers with nonreservable deposits. To enforce reserve requirement regulations, resources must be employed by some government agency. The enforcement authority may be a local agency or the central bank itself. For example, before 1980 a U.S. bank's choice of state agency or Federal Reserve System membership determined which authority would set and enforce reserve requirements. Edward Kane (1982) suggested that the ability of banks to choose their regulator constrained the Fed and state agencies to reduce reserve requirements to the "market" level. Kane's conclusion seems inconsistent with the traditional prediction that a central bank sets a high reserve requirement for monetary control reasons.

This paper attempts to explain the reserve requirement decisions of real world central banks by developing competitive and monopoly models of reserve requirement regulation. In the competitive model, local regulatory agencies compete with the central bank in setting and enforcing reserve requirements. After defining Kane's market reserve requirement, I specify the circumstances under which competition reduces the reserve requirement to this level.

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I then modify the regulatory model along the lines suggested by the Depository Institutions Deregulation and Monetary Control Act of 1980. This act deregulated deposit interest rates in the United States and transformed the process of setting reserve requirements from a competitive one to a monopolistic one. For the first time, the Fed could set and enforce reserve requirements for *all* financial institutions that offered transaction accounts.

To contrast how a central bank sets reserve requirements under competitive and monopolistic conditions, I assume that the revenue consequences of money production motivate central bankers. Such an assumption may not be very useful in explaining the day-to-day actions of central bank decision makers, but it seems appropriate when viewing the Monetary Control Act as a change in the nation's monetary constitution. I argue that the act eliminated a constraint on the Fed's actions, and thereby enhanced its ability in the long run to raise revenue through money creation. Overall, the analysis suggests that changes in the incentives facing central bank decision makers, and not macroeconomic issues, determine long-run reserve requirement policy.

A History of Reserve Requirement Enforcement

The 1935 Banking Act gave the Federal Reserve System statutory authority to specify the amount of reserves banks were required to hold behind their deposits. This power, however, was not absolute because the Fed could impose reserve requirements only on deposits of its member banks. State agencies set requirements for other banks.

Although Fed member banks faced a set of reserve requirements that did not depend on their locational decision, before 1980 the requirements of nonmember institutions varied from state to state. Most state regulatory agencies imposed statutory requirements that were lower than Fed-mandated requirements (Gilbert and Lovati 1978). State agencies also were more lenient in what they defined as reserves. They generally allowed their members to count deposits at approved banks as reserves and often allowed government securities and cash items in process of collection to be counted as well. A few state agencies imposed no requirements. The relative leniency of state-imposed reserve requirements was a primary reason for the membership decline at the Fed after World War II. Responding to this decline, in 1959 the Fed allowed its members to count as reserves vault cash in addition to deposits at the Fed.[1]

[1]See Goodfriend and Hargraves (1982) for a description of how the required reserve definition has changed over time.

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Before 1980, a bank's decision to transfer membership from the Fed to a state agency affected the demand for Fed-produced reserves. Given generally lower state requirements, the membership change directly reduced aggregate (Fed member bank and other bank) reserve holdings. But even if aggregate reserve holdings did not change, the demand for Fed reserves would fall because state banks could satisfy requirements by holding assets (such as government securities) that were not produced by the Fed.

Banks' ability to evade reserve requirement regulations imposed another limitation on the regulatory powers of the Fed. Statutory authority to set reserve requirements has no practical implications if the Fed does not devote resources to enforcing reserve requirement regulations. The Fed has two margins along which it can change the intensity of enforcement. First, it monitors member bank liabilities that already are officially defined as reservable. If reserve holdings are found to be insufficient at prespecified intervals, then legal sanctions are imposed on the negligent bank.

Second, the Fed monitors the creation by member banks of new liabilities that initially lie outside the reserve classification. Through such activity, the Fed intends eventually to bring these innovations within its regulatory umbrella. Failure to act along either of the two enforcement margins would induce banks to hold no reserves behind accounts that legally are classified as deposits and/or to develop new liabilities that do not fall under reserve law as presently defined.

Recent advances in financial sector communications and information technology have made it more profitable for banks to produce nonreservable deposit-like accounts (Kane 1981a, Greenbaum 1983, Hester 1981). For example, commercial paper issued by a bank's parent holding company in the late 1960s was not treated as a deposit under the law. The holding company could issue the paper as a nonreservable liability and then distribute the funds to the subsidiary bank.

Also, with development of electronic wire transfer technology, large banks in 1968 began acquiring funds through repurchase agreements. Banks sold securities to corporate customers at the close of a business day and simultaneously agreed to repurchase the securities at the beginning of the next day. This transaction was attractive to banks because funds acquired through these agreements had no reserve requirements.

The markets for bank commercial paper and repurchase agreements expanded rapidly in the late 1960s and early 1970s. In response, the Fed worked to modify reserve law so that these bank liabilities would be treated as reservable deposits. On September 18, 1970,

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after only a year of regulatory deliberations, the Fed amended Regulation D on member bank reserve requirements to cover commercial paper sales by bank holding companies and their subsidiaries when the proceeds were used to supply funds to bank affiliates. In contrast, the banking sector was able to deflect the Fed's attempt to impose requirements on repurchase agreements.

Several factors affected the uneven pace of defining new bank liabilities as reservable. Banks, themselves, could influence the classification process by lobbying the Fed to ignore the innovations. The intensity of bank lobbying tended to reflect how closely the innovation substituted for simple deposit accounts. Innovations that were identical to deposits, except in name, would be relatively valuable to bank customers and would foster much bank lobbying.

Differential enforcement costs also affected the pace of regulation. The higher the costs of detecting a particular type of bank liability for reserve requirement purposes, the longer the lag between innovation and regulation. Finally, the Fed had to contend with the possibility that some state banking agency enforcement levels were more stringent than others. If an innovation originated in a state with relatively lenient enforcement, then the Fed would risk losing members in that state if it quickly imposed reserve requirements.

Just as the reserve requirements set by the Fed tended to be higher than state requirements, Fed enforcement efforts appeared to be more thorough than many state efforts (Gilbert and Lovati 1978). In general, state banking agencies devoted few resources to discovering and punishing those banks that failed to back reservable deposits. They also tended to be relatively tolerant of financial innovations designed to circumvent state regulations.

The 1980 Monetary Control Act strengthened the Fed's position in the regulatory hierarchy by expanding its power to impose reserve requirements (within certain statutory limits) not only on member banks of the Federal Reserve but also on nonmember depository institutions. These requirements covered transaction accounts, nonpersonal time deposits, and Eurodollar borrowings. While lowering the reserve requirements faced by Fed member banks, the act raised the requirements for other banks by enough to increase the overall reserve burden (Cacy and Winningham 1982).

Members of the Fed can satisfy the new requirements by holding vault cash and/or deposits at Federal Reserve Banks. Other financial institutions have additional pass-through options. Nonmember state banks, for example, can hold reserves in the form of deposits at designated institutions having accounts directly with the Fed. These designated institutions must hold vault cash or Fed deposits on a

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dollar-for-dollar basis behind their deposits from nonmember banks. Because of the pass-through option, every dollar of reserves held by nonmembers of the Fed increases the Fed's reserves by that full dollar.[2]

Under the Monetary Control Act, the Fed became a monopolist both in setting and enforcing reserve requirements. The act, for the first time, required all depository institutions periodically to report their deposit liabilities and reserves to the Fed. State agencies no longer were directly responsible for monitoring whether their members observed reserve requirement regulations.

The Market for Reserve Requirement Regulation

Any serious theory of reserve requirement regulation must generate predictions that are consistent with the history outlined in the previous section. At the very least, a theory should (1) define the so-called market reserve requirement and specify the circumstances when the actual requirement will be at or above this benchmark level, (2) explain why reserve requirements and enforcement activities in the United States varied across states before 1980 and why they tended to be higher with Fed membership, and (3) predict how the Monetary Control Act will affect the overall reserve-to-deposit ratio.

Identifying the objective function of the regulators and the constraints they face is a first step in developing a testable theory. Consider the objective function of the primary regulator of reserve requirements—the central bank. The long-run tendencies of the central bank as a money producer may be highlighted by assuming it manipulates its production rate along with the reserve requirement to maximize revenue for the government.

The annual revenue flow (seigniorage) equals the real amount of non-interest-bearing liabilities (the monetary base) produced by the central bank. To focus the analysis on reserve requirement regulation, I ignore the public's currency holdings and assume the private sector demands the central bank's monetary base only because it must be held by banks to satisfy reserve requirements on bank deposits. Also, deposits pay no interest and the base rate of production

[2]Before 1980, a state bank might use correspondent balances as reserves. A dollar in state bank deposits increased correspondent balances by that dollar times the state requirement. Fed reserves increased by only the correspondent balance change times the Fed requirement.

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equals the inflation rate. These simplifying assumptions imply that seigniorage (S) equals

$$S = \Delta H = \pi H = \pi k D(i) \qquad (1)$$

where H is the real base, π is the inflation rate, k is the reserve requirement on real deposits, D, and i is the nominal interest rate on bonds. Equation (1) indicates that the public's real deposit holdings are a function of the nominal bond rate.

According to this standard formulation, the reserve requirement does not influence deposit demand.[3] Therefore, a seigniorage-maximizing central bank always benefits from increasing the requirement. If there are no political constraints, it sets the reserve requirement at one. Otherwise, the central bank raises the requirement as high as politically feasible and then selects the inflation rate that maximizes seigniorage. Viewing the reserve requirement as preset, Milton Friedman's (1953) well-known solution to this problem requires that the inflation rate be raised to the point where the inflation rate elasticity of base money demand equals a minus one.

The traditional approach makes a number of extreme assumptions about the nature of the regulatory market. Implicitly, it assumes that all banks choose central bank membership, or at least that both member and nonmember banks must back all of their deposits with central bank base. Furthermore, the traditional approach assumes the central bank devotes no resources to enforcing reserve requirement regulations. It is as if an automaton-like regulatory agency *costlessly* identifies and labels all bank money as deposits, subject to the prespecified reserve requirement. More generally, the seigniorage function should take into account that not all banks are required to hold reserves produced by the central bank, and those banks that are so required will comply with statutory requirements only if the central bank monitors their behavior.

To illustrate, consider two classes of banks. The law requires that central bank base support all the liabilities of class 1 banks. Class 2 banks fall outside the regulatory scope of the central bank, and therefore they do not hold central bank base. If z is the percent of total financial sector liabilities that the central bank legally can require be backed by its base (that is, z is the ratio of class 1 deposit liabilities to total deposit liabilities), then, with foolproof enforcement, the central bank can impose reserve requirements on zD of total deposits.

[3]A more general formulation allows banks to pay interest on deposits. As Dwyer and Saving (1986) showed, reserve requirements then influence deposit demand.

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With less than perfect enforcement, only a fraction, b, of zD will be detected for reserve requirement purposes.

Defining b as the enforcement (detection) ratio, the traditional seigniorage function can be reformulated as

$$S = \pi[bk + (1 - b)\hat{k}]zD(i) - C(a). \quad (2)$$

The cost to the central bank of enforcing its reserve requirement is C, and a represents units of the enforcement input used by the central bank to increase b. The symbol $\hat{k}$ represents the amount of (central bank) reserves class 1 banks voluntarily would hold behind a dollar of deposits even if the central bank did not enforce reserve requirements.

I interpret $\hat{k}$ as Kane's market reserve requirement. Without enforcement ($b = 0$), $\hat{k}$ is the effective reserve requirement for class 1 banks. With foolproof enforcement ($b = 1$), the effective requirement becomes the central bank's statutory requirement, k. With partial enforcement, the effective reserve requirement is a weighted average, $bk + (1 - b)\hat{k}$, of the statutory and market requirements. The central bank can change the effective reserve ratio either directly through an increase in the statutory reserve requirement, or indirectly by increasing a and thereby the enforcement ratio, b.

Given the reformulated seigniorage equation, a complete theory of reserve requirement regulation requires specifying the constraints facing the central agency. Kane (1981b, p. 132) indicates three sets of constraints that should be considered in modeling the operation of a regulatory market: "distributive politics that define a clientele to be serviced and place statutory limits on an agency's authority, opportunities for regulatee avoidance activity, and action undertaken by competing regulators."

With respect to reserve requirement regulations, local (state) regulatory agencies may compete with the central (bank) agency. A second group of participants in the regulatory market are the financial institutions that serve as the central bank's regulatees. Finally, Kane's reference to "distributive politics" suggests that a federal government and a network of local governments play at least some role in overseeing the operation of the central and local regulatory agencies.

I assume these groups interact within a federal region that is divided into n identical local jurisdictions. The local government in each region competes with other local governments in attracting financial institutions to its jurisdiction. Each of the n local governments establishes a regulatory agency that offers charters to financial institutions that choose to locate in the region. By choosing the local charter, banks automatically become members of the local banking agency

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and are bound by its regulations.[4] Alternatively, any bank may select central bank membership and regulation by choosing a central charter.

Only one local regulatory body regulates banks in a region at any one time. However, I model entry into the local regulatory market as contestable. A potential local regulator can replace the existing regulator in a jurisdiction at zero cost.

Having specified the structure of the regulatory market, the constraints faced by the central regulatory agency depend on the objective functions of the other actors in the regulatory market. Consider the objective function of competing local regulatory agencies. Unlike the central banking agency, local agencies do not have the right to produce monetary base. Without this revenue source, local agencies rely on budget appropriations from their local government each period.[5] Although not crucial to the analysis, for concreteness assume that agency employees want to maximize "excess" budgetary funds so as to engage in expense-preference behavior.

The actions of each local regulatory agency will be influenced by the preferences of its sponsor and its financial institution members. Initially, I make a simple assumption about the objective function of the sponsoring government. Each local government wants to maximize its local tax base in the form of total bank assets. Assuming homogeneous banks, the local government allocates budgets to its local agency so as to maximize the number of banks that choose to locate in the jurisdiction.

Finally, I assume that each financial institution confronts a dual-choice problem. Not only must it select a jurisdiction but, it also must decide whether to be a member of the local agency in that jurisdiction or the central agency. A representative bank will choose the regulatory agency that offers the most profits. When a bank receives the same profits with either agency, I assume the bank flips a coin to solve its membership problem.

To specify bank profits, assume that financial institutions have only non-interest-bearing transaction accounts as liabilities. Their assets consist of loans and reserves, and they always prefer to hold no excess reserves. Leaving aside intermediation costs, bank profits equal the revenue from loaning excess reserves on the market less any expenditures incurred in avoiding reserve requirement regulations.[6]

[4]In the United States, bank selection of a state charter does not preclude Federal Reserve membership.

[5]Some state agencies also receive a fee from the banks they inspect.

[6]This bank profit definition ignores bank entry into the market over time. It also assumes that banks compete for deposits on neither a pecuniary nor a nonpecuniary basis. Finally, the definition assumes that banks use no resources in acquiring a charter.

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When a regulatory agency raises the effective reserve requirement, outstanding loans and therefore bank profits fall. Banks can react to this regulatory burden by varying the amount of resources used to hide or shelter their deposits from the regulator. The enforcement ratio, b, now depends on the intensity of bank sheltering, as well as the agency's choice of input, a. *Ceteris paribus*, an increase in sheltering activity causes the agency's enforcement ratio to fall.

A Pure Model of Competitive Regulation

The primary feature of a competitive market for reserve requirement regulation is the assumption of a system of local regulatory agencies that compete with the central bank in setting and enforcing reserve requirements. As indicated above, I assume that there is only one local regulatory agency for each jurisdiction. The local sponsoring government can, however, replace the existing regulatory agency with a new agency at zero cost. This section develops a "pure" model in the sense that competition among the n local governments to attract banks to their jurisdiction is perfect.

The competitive model also assumes that only central agency member banks hold central bank reserves. In contrast, each local agency mandates that reserves of its member institutions be in the form of non-interest-bearing liabilities provided by the private sector instead of the central bank. Local banks, therefore, are the class 2 banks of the previous section. Their deposits are not a source of central agency reserves.[7]

The central agency's problem of how to select the inflation rate, the reserve requirement, and its investment in enforcement inputs can be subdivided into smaller steps. Central to this problem is the determination of how competitive regulation at the local level constrains central bank actions. I first consider the budget the local government in a typical jurisdiction gives to its local regulatory agency. This budget allocation dictates the (maximum) level of local agency enforcement activity and allows banks to compute their profits when they choose local agency membership. The central bank then takes this profit condition into consideration in its decision problem. Specifically, the central bank maximizes net seigniorage subject to the constraint that profits promised its members are at least as great as profits those banks receive from local agency membership.

The assumption of perfect competition among local governments eliminates any discretion they might have in the budgetary process.

[7]Deposits at state agency banks generally had some effect on Federal Reserve base before 1980 (see *supra*, footnote 2).

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Each local government will be driven by competition to grant its local agency a budget of zero. If, for example, a local government gives a budget that allows the regulatory agency to purchase some enforcement inputs, then bank profits in that jurisdiction will be lower than they potentially might be. This provides a neighboring local government with the opportunity to offer banks in its jurisdiction higher profits by granting its agency a lower enforcement budget. This budget-cutting process continues until budget appropriations in each jurisdiction equal zero. Ruling out subsidies to banks, local governments at this point have fully exploited their ability to attract banks to their jurisdiction.

The choice problem of the local regulatory agency follows trivially from this budgetary equilibrium. Without an enforcement budget, any attempt by the local agency to set a reserve requirement above the market level will be ignored by banks that are members of the local agency. Banks back their deposits with only the market level of reserves, and bank profits, designated as p^*, are the same as they would be in the absence of any formal regulatory structure.

Regulatory powers of the central bank are constrained by the condition that profits of its members be at least as great as p^*. Like the local regulatory agencies, therefore, the central bank is unable to enforce a reserve requirement higher than the market level. If the central bank tried to impose a statutory requirement higher than $\hat{k}$, no bank would take a central charter.[8]

Since bank profits are identical with local or central agency membership, each bank flips a coin to solve its membership problem. On average, half the banks join the central agency and the remainder some local agency. The percentage of total financial sector liabilities that the central bank legally can require be backed by its base, z, equals ½ in equilibrium.

Substituting $z = ½$, $a = 0$ (which implies $b = 0$), and $k = \hat{k}$ into the central agency's seigniorage function (equation 2) results in

$$S = \pi\hat{k}(½)D(i). \tag{3}$$

The central agency in this competitive regulatory setting has a decision problem that looks much like the traditional maximization problem depicted by equation (1). The main difference is that only a fraction (½) of banks are members of the central agency. As in the traditional case, seigniorage maximization implies that the central

[8]I assume that local (central) agency banks hold local (central) agency reserves in the absence of enforcement. Also, the market reserve ratio is the same for all banks, regardless of their affiliation.

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agency raises the inflation rate to the point where the inflation rate elasticity of money demand equals minus one.

One advantage of this competitive regulatory model, as compared with the traditional analysis, is that the reserve requirement is determined within the model. But the assumption of perfect competition among the n local governments leads to the extreme conclusion that local regulatory agencies always set the reserve requirement at or below the market level. Competition at the local level forces the central agency to reduce its requirement accordingly.

Somewhat surprisingly, empirical work on the behavior of local agencies provides some support for the strong market implication. Alton Gilbert (1978, p. 19), for example, tested the effectiveness of state reserve requirements and concluded that "an overall assessment of results in this analysis supports the view that in general state reserve requirements are not effective."

Gilbert, however, found exceptions to this overall assessment. In states that do not allow banks to count cash items in process of collection as reserves, the reserve requirement influences nonmember bank behavior. More important, Fed membership across states is sensitive to the resources state agencies use to monitor and enforce requirements. These findings suggest not only that the *effective* reserve requirement exceeds the market level but also that requirements may differ across states.

The pure competitive model generates several other counterfactual conclusions. It implies that enforcement budgets can be no higher than zero and that central bank membership will be precisely one-half of the total number of banks. The following section reformulates the competitive interaction among local government sponsors in a way that allows (1) enforcement budgets greater than zero and, therefore, effective reserve requirements above the market level, (2) differences in statutory requirements between central and local agencies, (3) variations in effective requirements across localities, and (4) variations in central bank membership over time.

Competitive Regulation with Local Government Budget-Setting Power

Instead of assuming local government competition automatically drives enforcement budgets to zero, suppose local governments retain some budget-setting power. Each local government may use this power to induce local agency enforcement of a reserve requirement that is higher than the market requirement. This outcome presumes

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that over some range local governments prefer higher reserve requirements.

An interest group perspective suggests why a local government might have this preference. The local government may be responding to pressures from groups that benefit from higher local agency reserve requirements. For example, what if balances at specified correspondent banks and central government securities count as reserves? Reserve requirements then are a source of demand for these private and public obligations. Correspondent banks and the central government would have a common interest in lobbying (rewarding) the local government for using its budgetary authority in ways that lead to reserve requirement increases.[9]

The local government may favor higher reserve requirements for public interest considerations as well. Federal deposit insurance may induce banks to take too many risks in maximizing the value of their assets. In particular, banks may choose to reduce their reserve holdings below even market levels. This provides public-spirited local governments with the opportunity to use their budgetary powers to raise reserve requirements.

Whether interest group driven or public-spirited, a local government with budgetary power will grant a certain budget to its local agency with the expectation that the funds will be used to enforce an effective reserve requirement that is higher than the market level. However, because the local government directly observes only the statutory requirement, it cannot be sure that all the funds will be allocated strictly to production of a higher effective reserve requirement. The best the local government can do in these circumstances is to establish a target statutory requirement and rely on a contestable regulatory market to control local agency enforcement efforts.

What if a local agency used too few enforcement units and engaged in expense-preference behavior? With the appearance of any excess funds, outsiders would be prepared to take over management of the local regulatory agency. An efficient takeover market would ensure that enforcement activity would be raised to a level that cleared the market; that is, enforcement would increase to the point that exhausted excess funds.[10]

Bank profits will be lower when local agencies enforce requirements greater than market reserve requirements. Because local agency

[9]In addition, this section demonstrates that the central government's seigniorage extraction powers are enhanced with higher local agency reserve requirements.

[10]Without contestability, local governments must directly monitor agency shirking. Because such monitoring is not costless, some expense-preference behavior would be observed.

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membership is less attractive, constraints on central bank actions are not as tight. The central agency will be able to raise its reserve requirement above the market level and devote resources to enforcement.

Consider the central bank decision problem when local agencies throughout the federal region receive identical enforcement budgets and set identical statutory reserve requirements (higher than $\hat{k}$). Although local bank profits will be the same in each jurisdiction, the central bank does not have to set its own control variables at precisely the levels established by the local regulatory agencies. It need only choose a reserve requirement and enforcement input combination such that the profits a bank receives from central bank membership equal the (now lower) profits a bank receives from local agency membership. The central agency may trade off a high (low) statutory reserve requirement for a low (high) level of enforcement activity.

With differential levels of local enforcement, profits of local agency members will differ across localities. The central bank now has an additional decision-making margin. Since there is no common local bank profit level, the central bank may choose to provide its members with either relatively low or high profits.[11] By choosing low levels of enforcement activity and low statutory reserve requirements, the central agency can induce banks in most states (that is, those with high effective reserve requirements) to choose central agency membership. Incrementally higher central bank activity levels and reserve requirements cause membership losses in marginal states. Instead of central bank membership being an all-or-nothing proposition, membership steadily declines as the effective reserve requirement rises.[12]

The extended competitive model avoids the factual anomalies associated with the pure model. Generally, the extended model predicts that both local and central regulatory agencies will enforce reserve requirements. To the extent that enforcement budgets differ among states, effective reserve requirements also differ. Given a continuum of local agency effective reserve requirements, the central agency can vary its effective reserve requirement within this range.

Monopoly Reserve Requirement Regulation

This section replaces competitive regulation with a setting suggested by the Depository Institutions Deregulation and Monetary

[11]The central bank sets uniform statutory reserve requirements and enforcement activity levels across all states.

[12]In terms of seigniorage equation (2), z is now a function of activity level a and statutory requirement k.

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Control Act of 1980. In particular, I assume here that the central agency has statutory authority to require all banks to hold reserves in the form of central bank–produced base. The central agency not only sets the reserve requirement for all banks but also is the only enforcement agency. Local agencies no longer monitor local bank compliance with reserve requirements.

The seigniorage function of a central bank that has a monopoly in setting and enforcing reserve requirements becomes

$$S = \pi[bk + (1 - b)\hat{k}]D(i) - C(a). \qquad (4)$$

The fraction, z, of total financial sector liabilities that the central bank legally can require be backed by its base automatically rises to one. Note also that the central bank no longer is constrained by a financial institution profit condition. Because the central bank regulates all policy variables (including reserve requirements for nonmembers), bank profits—and, therefore, central bank seigniorage—are not affected by the membership decision. In this pure monopoly setting, the central bank does not worry that the profits of its members may be lower than those of nonmembers.[13]

The absence of a bank profit constraint, however, does not imply that the central bank wants to raise reserve requirements and enforcement activities as high as possible. Increases in statutory reserve requirements and enforcement activities have negative as well as positive effects on central bank seigniorage. An increase in the reserve requirement, for example, increases seigniorage for a given enforcement ratio, b. But this positive effect will be at least partially offset by the increased bank-sheltering activity induced by the reserve requirement change. Similarly, although an increase in the amount of resources invested in enforcement activities raises seigniorage by increasing the enforcement ratio, it also raises enforcement costs. The monopoly central bank will be motivated to raise each of these control variables to the point where marginal benefits just equal marginal costs.

Comparison of Competitive and Monopoly Reserve Requirement Regulations

If local governments are modeled as having no budget-setting power, then the contrast between competitive and monopoly reserve

[13]Throughout the paper, I assume that banking agencies regulate only reserve requirements. This assumption is not descriptive of the U.S. regulatory market. After passage of the Monetary Control Act, for example, the relative attractiveness of Fed and state agency membership still depends on differences in other regulatory policies.

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requirement regulations is most striking. Even if the monopoly regulator does not enforce requirements higher than market reserve requirements, a comparison of equation (3) (where seigniorage becomes $\pi\hat{k}(\frac{1}{2})D$) with equation (4) (where seigniorage becomes $\pi\hat{k}D$) indicates that monopoly seigniorage will be twice as high as competitive seigniorage. More generally, this comparison understates the seigniorage difference because granting the central bank monopoly status transforms it from a "price taker," where it has no discretion over reserve requirement policy variables, into a "price setter." The effective reserve requirement will be raised from its market level to its monopoly level.

The ability of local governments to set their own budgets relaxes the price-taker constraints on the central bank. The central bank's decision problem in this modified competitive setting does not differ qualitatively from its problem in the pure monopoly setting. In both settings the central bank must search for policy instrument values that maximize seigniorage.

Under certain circumstances, the central bank's policy decisions will be identical in the competitive and monopoly settings. Consider the special case wherein all local governments happen to grant their local agencies uniformly "large" budgets. Bank profits from local agency membership will be correspondingly low. Profits may be so low that a central bank, acting as an unconstrained monopoly regulator, would choose to reduce them no lower. Because this type of competition places no effective constraint on central bank behavior, the central bank chooses the same reserve requirement and enforcement levels regardless of the regulatory structure.

Local governments generally do not grant such large enforcement budgets. Therefore, the bank profit constraint the central bank faces in the competitive setting usually will be binding. Making the central bank a monopoly regulator eliminates this constraint and induces it to raise its reserve requirement and enforcement activities above the (modified) competitive solution.

As with any market, monopoly in the market for reserve requirement regulations provides the producer with readily identifiable benefits. With respect both to statutory requirements and enforcement levels, the monopoly setting allows the central bank to raise the reserve requirement tax on banks. The monopolist's ability to exploit its position will be constrained by the opportunities banks have to evade reserve requirement regulations. Still, seigniorage at any inflation rate will be higher in the monopoly setting as compared with either the pure or modified competitive setting.

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Conclusion

Economists have long known that reserve requirements create a demand for central bank base money. However, they have not formally acknowledged that resources must be invested in enforcement activities for these requirements to be effective. Earlier approaches tended to view the central bank as an automaton-like agency that costlessly identified bank liabilities as reservable. According to this view, the reserve requirement itself was either set by an unconstrained central bank or by unspecified political forces.

This paper has outlined a model of a seigniorage-maximizing central bank that controls its base rate of production, but whose ability to set and enforce reserve requirements may be constrained by competition from local regulatory agencies. The interaction between local governments and their local regulatory agencies helps define the political forces that constrain central bank actions. Several predictions emerge from this perspective.

First, the reserve requirement generally will not be set at the market level. The market solution emerges only in the special case where competition is so tight that local governments have no budget-setting powers. More generally, the local government provides its local regulatory agency with the budgetary inducement to expend some resources in enforcing a reserve requirement that is above the market benchmark.

Second, the reserve requirement and enforcement decisions of local agencies constrain the central bank's choice of policy variables in the competitive setting. Central bank regulations cannot leave a member bank with lower profits than that bank receives with membership in a local agency. If local agency regulations become less stringent, perhaps because of a tax revolt at the regional level, then the central bank must respond by a combination of reserve requirement and enforcement activity cuts. Overall, the regulatory model suggests that political "market" constraints, and not exogenous macroeconomic considerations, drive the central bank's reserve requirement decisions.

In the post–World War II period, reserve requirements of state agencies and the Federal Reserve System generally declined. State banking regulations, however, became progressively less stringent compared with Fed reserve requirement regulations. As a result, the Fed experienced a steady membership decline during the 1960s and 1970s. Continuation of this trend threatened to force the Federal Reserve out of the reserve requirement regulatory market. Partially in reaction to this threat, Congress passed the Depository Institutions Deregulation and Monetary Control Act of 1980.

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The act changed the rules of the game by relaxing constraints on decision makers at the Fed. By giving the Fed the authority to impose reserve requirements on deposit liabilities of all financial institutions, the act eliminated local agencies as regulatory competitors, allowing the Fed to increase the stringency of its reserve requirement regulations and thereby extract more wealth through money production.

The model outlined in this paper does not predict that the Fed will immediately act as a profit-maximizing monopolist with passage of the Monetary Control Act. In particular, the Fed is a bureaucratic agency that does not have residual claimant rights to seigniorage. Furthermore, instead of allowing the Fed to set initial reserve requirement levels, the act directly defined new requirements.[14]

The Act does grant the Fed explicit powers to change reserve requirements in the future. The prediction of more stringent reserve requirement regulations, therefore, illustrates the long-run tendencies of a monetary authority that no longer is constrained by competition from other agencies in this regulatory market. In this sense the Monetary Control Act can be interpreted as a change in the nation's monetary constitution that enhances the wealth-extraction powers of the central government.

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Federal Reserve Interest Rate Smoothing

Marvin Goodfriend

Mark Toma's interesting paper on the theory of reserve requirement regulations explains such requirements as resulting from a government revenue-raising motive. I do not intend to address the details of Toma's argument or to comment directly on the plausibility of the view that reserve requirements are simply a tax. Nor will I discuss the specifics of his public choice theory explaining the structure of reserve requirements. Instead, this article focuses on a related topic, that of Federal Reserve interest rate smoothing. As shall become clear, the discussion here supports Toma's hunch on how to explain reserve requirements.

A discussion of interest rate smoothing is appropriate for a number of reasons. In recent years the theoretical feasibility of interest rate smoothing has been demonstrated in coherent rational expectations models. (See, for example, McCallum 1986 and Goodfriend 1987a.) This development has paved the way for sensibly interpreting the comments of Fed watchers who persistently characterize Federal Reserve policy as choosing the level of short-term interest rates. It also makes sense of the extensive institutional evidence that the Fed can and has smoothed interest rates throughout its history. (See Goodfriend 1987b.) In addition, empirical work by Miron (1986), Mankiw and Miron (1986), and Barro (1987) provides evidence of both seasonal and cyclical Fed interest rate smoothing. Giving interest rate smoothing a central place in thinking about monetary policy thereby reconciles analytical, financial market, institutional, and empirical

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evidence. The attractiveness of the interest rate smoothing view of monetary policy comes in part from this reconciliation.

As discussed below, the fact that the Fed has employed interest rate smoothing throughout its history implies that the standard rationale for reserve requirements—that they are necessary for monetary control—has been highly misleading. The interest rate smoothing characterization of monetary policy thereby provides indirect support that reserve requirements have functioned exclusively as a tax. This supports Toma's view that the structure of reserve requirements must be explained as a government revenue-maximizing motive.

In addition, pursuing the analytical and empirical implications of interest rate smoothing seems to be a promising way of developing a better understanding of monetary policy as it is actually conducted. In other words, it provides a realistic way of pursuing the positive theory of monetary policy. Historically, economists have emphasized the normative aspects of monetary policy, suggesting models of what the Fed ought to do, but they have found their advice largely ignored. Perhaps by using the interest rate smoothing view, economists can better understand the objectives and constraints facing the Fed so that policy advice can be made more relevant, tailored better to the realities of central banking, and have a better chance of being implemented.

How Interest Rate Smoothing Works

An oral tradition in monetary economics holds that the central bank cannot control nominal interest rates directly. For example, it asserts that the central bank cannot peg the nominal interest rate because doing so would make the price level unstable or indeterminant. This view dates back at least to Wicksell (1898, 1905). It was echoed by Friedman (1968) and received a more formal restatement in Sargent and Wallace (1975). This view, however, has been successfully challenged in recent years. First, McCallum (1981) showed that a monetary authority could run an adjustable nominal interest rate peg and generate a stable, determinate price level. The stability and determinacy of the price level under an absolute nominal interest rate peg was demonstrated by Dotsey and King (1983) and Canzoneri, Henderson, and Rogoff (1983). McCallum (1986) related these new developments to the real bills doctrine. Goodfriend (1987a) discussed the definitions, mechanics, and implications of interest rate smoothing in a positive theory of central bank behavior. It must be emphasized that these papers explain the feasibility of price level determinacy with *nominal* interest rate smoothing by the monetary authority.

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Whether the monetary authority can smooth real interest rates is a separate and more controversial matter. This discussion assumes that the monetary authority cannot influence real interest rates.

To understand the mechanics of nominal interest rate smoothing, consider Goodfriend's (1987a) model, which has three basic equations. First, it has a money demand function. Second, it has a Fisher equation relating the nominal interest rate to an ex ante real interest rate component plus an expected inflation component. It is helpful to conceive of the Fisher relation as an arbitrage condition equalizing expected real yields on nominal bonds with the real interest rate that clears the economywide goods market. Third, the model has a money supply rule that explains how the central bank generates the nominal money stock. The details of the money supply rule are unimportant for this discussion. What is important is that at each point in time, the money supply rule allows the public to form a determinate expectation of the future nominal money stock.

Interest rate smoothing works as follows. The money supply rule pins down the expected future nominal money stock each period. This, together with expected future real demand for money, implies an expected future price level. Suppose the central bank is pegging the nominal interest rate. The market sets the real expected yield on nominal debt equal to the goods market clearing real rate by bidding the current price level to the point where the pegged nominal rate less expected inflation just equals the required real interest rate.

A key feature of this equilibrium is that the current price level is determined by working backward from expectations about the future price level, through the expected inflation necessary to convert the nominal interest rate peg into the required real yield. Current nominal money growth, therefore, does not cause inflation under interest rate targeting. The current price level is determined by the level of the nominal interest rate peg, together with the goods market clearing real interest rate and future expected nominal money supply and demand.

Suppose the money supply rule were to pin down the future price level at a fixed target so that the price level were stationary. In this case, nominal interest rate smoothing would make the real interest rate shock move the current price level around. That is, the expected inflation or deflation required to convert the real yield on nominal debt into the required ex ante real rate would be achieved by bumping around the current price level.

In practice, central banks are uncomfortable allowing the current price level to be erratic. Long-term nominally denominated contracts in credit and labor markets may allow surprise price level movements

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to have potentially destabilizing effects. Goodfriend (1987a) has shown that a central bank wishing to minimize price level forecast error and smooth nominal interest rates can create the necessary inflation or deflation by moving the expected future price level around instead. Such a policy, however, makes both the price level nonstationary and the money stock exhibit "base drift." (See Goodfriend 1987b for a discussion of base drift.) It converts temporary real interest rate movements into permanent jumps in the money stock and price level. As the forecast horizon recedes, price level and money stock forecast error variance go to infinity. In this sense, interest rate smoothing creates macroeconomic instability. It appears that interest rate smoothing is a policy widely followed by world central banks because they believe that the financial stability it buys is worth the cost in increased price level instability. It remains unclear to me, however, whether this often-heard rationale for interest rate smoothing accords with its actual explanation. We need much future work on this question.

Finally, in this section, I want to apply the theory of interest rate smoothing to explain why reserve requirements are unnecessary for monetary control. The standard view is that reserve requirements are useful in enabling the central bank to better control the money stock. (See Friedman 1960, p. 50.) In this view, reserve requirements operate by stabilizing the money multiplier, thereby allowing the central bank to control bank deposit money with its total reserve instrument. But under interest rate smoothing as practiced by the Federal Reserve, the money multiplier does not play a causal role in nominal money stock or price level determination. Under interest rate smoothing, the current price level is determined by the chosen level of the nominal interest rate, the goods market clearing real interest rate, and the expected future price level. Current-period money demand, depending, of course, on the current price level, is accommodated by the central bank at the chosen current nominal interest rate. Reserve requirements simply help determine the quantity of monetary base that the central bank must supply currently to provide that accommodation. But reserve requirements do not help determine the money stock.

Institutional Means of Interest Rate Smoothing

The Federal Reserve has achieved its interest rate targets over the years in varied and somewhat complicated ways (Goodfriend 1987b). In the 1920s the Fed used relatively little nonprice rationing at the discount window. It forced the banking system to obtain a portion of monetary base demanded by borrowing at the window. But because

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there was little nonprice rationing, the discount rate, roughly speaking, provided a ceiling for other interest rates. The discount rate was raised and lowered to adjust the level of short-term interest rates, with appropriate adjustments to nonborrowed reserves so that banks were continually induced to borrow some monetary base at the window.

During most of the 1930s, the discount rate was above market rates, so borrowing at the window was negligible. From 1933 to the end of the decade, the Fed held its portfolio of government securities essentially constant. The Fed, therefore, could not be construed as smoothing interest rates during this period. Interest rates, however, were extremely low, less than 1 percent, and were more or less smoothed any way because they were near their lower bound of zero. So there would have been no need for the Fed actively to smooth interest rates. Later, in the 1940s, the Fed smoothed interest rates as part of its government security price pegging policy during and after World War II.

A procedure similar to that used in the 1920s was also used in the 1950s and 1960s after the Treasury–Federal Reserve Accord. The difference was that the target for borrowed reserves was varied more often to affect slight changes in the level of rates without always changing the discount rate. In the 1970s the Federal Reserve used an adjustable federal funds rate peg by establishing bands of 50 basis points, on average, within which it would keep the funds rate by appropriate open market operations whenever the limits of the band were hit.

The Fed's move to reserve targeting in October 1979 did not mean abandoning interest rate smoothing. Because reserve requirements were lagged (until February 1984), reserve demand was predetermined within a given reserve statement week. Hence, by choosing a nonborrowed reserve target in a given week, once again the Fed used a procedure whereby it essentially chose a quantity of reserves the banks would have to borrow at the discount window. Given Fed nonprice rationing, the demand for discount window borrowing is a function of the spread between the federal funds rate and the discount rate. By choosing the volume of forced borrowing together with the discount rate, the Fed in effect selected a level of the federal funds rate on a week-by-week basis. This procedure amounted to a kind of noisy interest rate smoothing because of the unpredictable variability in the demand schedule for discount window borrowing. Moreover, it was one in which reserve requirements played an inessential role; an identical path for the nominal interest rate could have been produced by choosing a level for the funds rate directly. Even

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since reserve requirements were made contemporaneous in February 1984, ostensibly to improve monetary control, the Fed has continued to target borrowed reserves or the federal funds rate, so the structure of reserve requirements has remained irrelevant to monetary control.

Empirical Evidence on Interest Rate Smoothing

I referred in the introduction to recent empirical evidence of interest rate smoothing. Miron (1986) has shown that the Fed removed a pronounced seasonal fluctuation in the nominal interest rate that ranged about 6 percentage points from 1890 to 1914. Of course, earlier authors such as Friedman and Schwartz (1963) recognized this. Mankiw and Miron (1986) cannot reject the view that the short-term interest rate is a random walk after the founding of the Fed, but not before. They suggest their finding represents interest rate smoothing behavior on the part of the Fed.

Barro (1987) used Goodfriend's (1987a) model of interest rate smoothing with a public finance view of the Fed's nominal interest rate target. Goodfriend assumed a constant nominal interest rate target to illustrate the mechanics and feasibility of interest rate smoothing. His simplifying assumptions made the nominal interest rate a serially uncorrelated white noise process. As mentioned above, Mankiw and Miron found it to be approximately a random walk. Barro appended a random walk nominal interest rate target generating equation to Goodfriend's model. In an earlier paper, Barro (1979) showed that optimal tax policy involves the government making the tax rate a random walk. Pointing out that the nominal interest rate is the tax rate on the monetary base, Barro justified his nominal rate random walk equation as optimal tax policy. His justification for the random walk interest rate target follows from and is empirically substantiated somewhat by Mankiw (1986).

Kimbrough's (1986) argument, however, weakens the optimal tax policy rationale. He showed that if money is explicitly modeled as an intermediate good that helps to affect the conversion of scarce resources into consumption goods, then it is not optimal to use an inflation tax to help generate revenue. Instead, optimal taxation calls for adopting the optimum quantity of money rule in which the government generates a rate of deflation that makes the nominal interest rate zero.

Nonetheless, with some additional modifications, Barro derives and tests joint restrictions on the inflation and monetary base generating processes implied by Goodfriend's model coupled with the

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random walk nominal interest rate target generating process. Barro's results are for the period 1890 to 1985. He rejects the model for the period before the establishment of the Fed, finds mixed results for the interwar period, but cannot reject the model for the post–World War II period. In short, his results are encouraging though preliminary.

Conclusion

This paper has argued that nominal interest rate smoothing has been an important feature of monetary policy as practiced by the Federal Reserve. It has drawn on recent theoretical, institutional, and empirical work to make the point. By documenting the interest rate smoothing view and by pointing out that reserve requirements serve no monetary policy purpose under it, the discussion has provided indirect support for the view that reserve requirements must be explained as a tax.

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The FSLIC Is "Broke" in More Ways Than One

Gillian Garcia

As a result of both the savings and loan industry crisis that began earlier in the decade and inappropriate regulatory policies, the FSLIC is now "broke." Its bankruptcy makes it principal among the thrift industry regulators because the plight of the FSLIC prevents it, as well as the other S&L regulators, from taking the actions needed to ensure the future prosperity of the industry. Regulators have been forced to make "second best" regulatory responses that are frequently so ineffective they render the system of regulatory policies itself "broke." In turn, this set of destitute policies, together with punitive actions from Congress and the administration requiring healthy thrifts to bear the burden of industry clean-up, could conceivably bankrupt the entire savings and loan industry.

The most important regulatory error, which will be the focus of this paper, is the decision to allow large numbers of insolvent and low-capital S&Ls to continue functioning, often for long periods of time and almost as a matter of course. The continued operation of these bankrupt institutions exposes the insurance corporation to moral hazard and the S&L industry to adverse selection as the owners and managers of insolvent insured thrifts are given the opportunity to enjoy any benefits from the gambles they undertake with depositors' funds while passing the losses to their insurer, healthy thrifts, or the taxpayer. These losses have proved heavy and are rapidly increasing the degree of the FSLIC's insolvency.

The continued operation of thrifts that have failed the market test of survival of the fittest, threatens the viability of the industry itself

Cato Journal, Vol. 7, No. 3 (Winter 1988). Copyright © Cato Institute. All rights reserved.

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through adverse selection. Healthy thrifts must compete with weaker institutions enjoying regulatory preferences and subsidies. If this situation is allowed to continue indefinitely, the subsidized weak could bring down the marginally solvent and, ultimately, even the strong institutions, causing many more industry participants to fail.

Moreover, all thrifts are now paying higher insurance premiums in order to provide the FSLIC with the resources it needs to begin resolving the industry's problems. In this respect, the additional premiums put healthy thrifts at a disadvantage in competing with nonthrift depository institutions such as commercial banks, savings banks, and credit unions. The strongest thrifts are beginning to flee the industry by obtaining bank charters and shifting to the Federal Deposit Insurance Corporation, a stronger insurer. The viability of the S&L industry itself may be threatened as the strong flee while the weak and at least some of the marginal deteriorate.

Many argue that the new portfolio powers granted earlier in the decade have given thrifts opportunities to undertake exceptional risks. The call for reregulation has been made, therefore, and the Federal Home Loan Bank Board has responded by reimposing some portfolio restrictions. Indeed, it is inappropriate to allow insolvent firms to gamble at the FSLIC's expense, but while deregulation may have given insolvent S&Ls additional ways in which to gamble, it has also provided benefits to sound institutions, their borrowers, and depositors. Unless we are careful, sound as well as weak thrifts and the consumer could be forced to relinquish those gains. The exigencies of restraining the activities of failed S&Ls should be kept separate from the discussion of what powers are appropriate for sound depository institutions.

In short, the S&L industry has become polarized. Most of the strong institutions are prospering, but many insolvent thrifts are deteriorating rapidly, and some of the marginally solvent savings and loans are approaching failure. This situation has occurred at a time when the interest rate environment has been favorable for S&Ls (an advantage that may be departing as interest rates rose sharply during the second quarter of 1987). It is possible that a replay of the interest rate crisis that devastated the industry at the beginning of the decade will occur, making it all the more crucial that the existing problems be dealt with quickly.

On Being Broke

Traditionally, the FSLIC has imposed on federally insured S&Ls an annual insurance premium of one-twelfth of 1 percent of total

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deposits. For 50 years this premium was adequate to cover FSLIC expenses and the cost of resolving the problems of weak institutions. However, the price of dealing with but some of the industry's recent problems has been so high that two years ago the FSLIC imposed an additional annual "special assessment" of one-eighth of one percent of total deposits, causing thrifts to pay 20.8 basis points to the FSLIC for each $100 of deposits. The special assessment raises S&L costs above those of the commercial banks, which currently pay to the FDIC only 8.5 basis points per $100 of deposits. Thus, because of their insurer's plight, S&Ls are at a competitive disadvantage when compared to banks and other depository institutions.

Despite the extra assessment, the FSLIC's primary and total reserves have declined since 1983 and have fallen far short of meeting its obligations, as Table 1 shows. Indeed, the General Accounting Office declared the Corporation insolvent early in 1987 and estimated it faced a negative net worth of $6 billion in May 1987.[1]

TABLE I

FSLIC INSURANCE FUND RESERVES
(IN BILLIONS OF DOLLARS)
1980–85

December	Primary Reserves[a]	Secondary Reserves[b]	Total Reserves
1980	5.67	0.79	6.46
1981	5.70	0.60	6.30
1982	5.69	0.61	6.30
1983	5.76	0.66	6.42
1984	4.89	0.72	5.61
1985	3.78	0.77	4.55

[a]Primary reserves, in principle, are immediately usable by the FSLIC because they derive from the regular and special assessment premiums paid by thrifts to the FSLIC and from any interest earned on insurance fund investments.

[b]In the early 1960s, falling FSLIC reserves led to legislation requiring thrifts to prepay insurance premiums into a secondary reserve account. Although the requirement was eliminated in the 1970s, some prepaid premiums and accumulated interest remain. The secondary reserve was not readily available for FSLIC use as it remained an asset on S&L books. Thus, when GAO forced the FSLIC to write off the secondary reserve during the 1986 financial audit, it resulted in a dollar-for-dollar reduction in industry net worth, further increasing the difficulties of some problem thrifts.

SOURCES: *Examination of Financial Statements of the Federal Home Loan Bank Board and Related Agencies*, GAO/AFMD-82-58, March 1982; GAO/AFMD-83-65, April 1983; GAO/AFMD-84-47, May 1984; GAO/AFMD-85-60, July 1985; *Financial Audit Federal Savings and Loan Insurance Corporation's 1985 and 1984 Financial Statements*, GAO/AFMD-86-65, July 1986.

[1]See U.S. General Accounting Office (1987).

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At the same time, estimates of the cost of resolving the problems facing the FSLIC have been rising. Table 2 shows that both the number of S&Ls that are insolvent using generally accepted accounting principles (GAAP) and the value of assets in failing thrifts rose each year from 1980 through 1985. The Federal Home Loan Bank Board (FHLBB) reports that the average cost of disposing of failed thrifts in 1984 was almost 15 cents per dollar of assets.[2] Extrapolating this average cost yields an estimated total cost of $16.9 billion for closing all thrifts that were insolvent in 1984.

To make matters worse, the FHLBB has said that the average cost of merging or liquidating failed thrifts has been rising lately, although it has not released recent point estimates of its costs. GAO has data showing that costs associated with liquidations have risen sharply since 1984, but it has no data on recent merger costs. Data in Table 3 indicate that the numbers of liquidations have been increasing relative to the numbers of mergers, even though mergers are usually less costly, so it would appear that average resolution costs have indeed been rising.

The number of insolvent thrifts and the value of their assets remained relatively constant during 1985 and 1986, but as the per dollar disposal cost has risen, total potential demands on the insurance fund have also soared. If average disposal costs have risen to, say, 25 cents per dollar of assets, total potential demands on the insurance fund in 1987 could exceed $28 billion. Early in 1987, the Bank Board estimated the cost of closing just the thrifts that were insolvent under the more lenient regulatory accounting principles (RAP) at $23.6 billion.

Resolution Options

The Bank Board uses three types of final resolution for failed S&Ls, all of which cause the insolvent institution to cease to exist. Liquidation is the first type of action listed in Table 3. The term is frequently understood to mean a payout to depositors. Today, however, payouts are rare because they are often costly, and the FSLIC does not have the necessary funds at hand. Recently, liquidations have involved passing insured deposits to another institution. The deposit liabilities are matched by both sound and unsound assets from the failed S&L or from some other firm, cash, or FSLIC promissory notes. Typically, the FSLIC takes over the worst assets.

Mergers have historically been the most cost-effective and, hence, the preferred way of disposing of failed thrifts. Two types of regu-

[2]See U.S. General Accounting Office (1986).

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TABLE 2

ESTIMATES OF FSLIC LOSSES ON INSOLVENT INSTITUTIONS' ASSET PORTFOLIOS, 1980–86[a]
(IN BILLIONS OF DOLLARS)

December	Number of Insolvent Institutions	Total Value of Assets	Potential Dollar Losses to the FSLIC[b]			
			5 Percent	15 Percent	25 Percent	35 Percent
1980	16	0.12	0.01	0.02	0.03	0.04
1981	53	11.82	0.59	1.77	2.96	4.14
1982	222	63.51	3.28	9.53	15.88	22.23
1983	281	77.76	3.89	11.66	19.44	27.21
1984	434	101.58	5.08	15.24	25.39	35.55
1985	449	112.93	5.65	16.94	28.23	39.52
1986[c]	445	112.76	5.64	16.91	28.19	39.47

[a]Insolvent institutions have zero or negative GAAP net worth. We have calculated the GAAP net worth of institutions by subtracting from their reported regulatory net worth those items not consistent with GAAP. Industry participants have questioned some FHLBB regulations related to the valuation of assets and reserves that may be more rigorous than would be required under GAAP. To the extent this is true, our estimates of GAAP net worth may be understated and, thus, the number of institutions insolvent under GAAP, overstated. Data to further refine our GAAP estimates are not collected by the Bank Board nor are they available elsewhere to our knowledge. Such adjustments to GAAP net worth as may be appropriate, therefore, cannot currently be done. While further research may be necessary, the Bank Board has said that such adjustments would not substantially alter the picture of the industry provided by currently available information.

[b]Dollar losses to the FSLIC assuming 5, 15, 25, and 35 percent losses on the assets of institutions that are liquidated or merged. In 1984, the average cost to the FSLIC of dealing with failed institutions was 14.7 percent of assets.

[c]Data are for September 1986.

SOURCE: FHLBB Semiannual and Quarterly Financial Statements, 1980–86.

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TABLE 3

DISPOSITION OF INSOLVENT INSTITUTIONS[a] 1980–86

FSLIC Action	1980	1981	1982	1983	1984	1985	1986
Liquidations[b]	0	1	1	6	9	10[c]	21[d]
Supervisory Mergers[e]	21	56	166	31	13	11	4
FSLIC Mergers[f]	11	23	46	33	17	22	22
Total Resolutions	32	80	213	70	39	43	47
Allocations to MCP[g]	0	0	0	0	0	25	29 (17)[h]
Total Number of Insolvent Institutions[i]	16	53	222	281	434	449	445[j]

[a]An insolvent institution is defined to have GAAP net worth less than or equal to zero.
[b]Liquidations include depositor payoffs and transfers of deposits backed by cash, FSLIC assets or notes, or a combination of these to other, often newly created, institutions.
[c]In two 1985 liquidations, assets in receiverships were transferred to newly created S&Ls that became MCPs.
[d]Twelve institutions placed in liquidating receiverships in 1986 were actually transformed into newly created MCPs. Thus here and for two cases in 1985, the liquidating receivership was used, not to close institutions, but to create MCP institutions.
[e]In a supervisory merger, the Bank Board compels the institution to merge, typically without financial assistance, because the S&L failed to meet regulatory capital and other requirements.
[f]In a FSLIC merger, the insurance fund provides financial assistance as an inducement to the acquiring institution.
[g]Allocated initially to the management consignment program (MCP) in any given year.
[h]The MCP definition was changed early in 1987. Seventeen institutions originally classified as MCPs in 1986 were declared to be non-MCPs as of December 31, 1986, because they had not gone through conservatorship or receivership. These 17 institutions are *not* included in the 29 shown above as having been added to the program in 1986.
[i]At the end of the year, except 1986.
[j]By September 1986.
SOURCES: FHLBB and FSLIC.

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latory merger are available to the Bank Board.[3] A supervisory merger is arranged by the Bank Board without financial assistance. The FHLBB has the power to force a thrift to merge if the institution becomes insolvent or if it is operating in an unsafe and unsound manner. In the second kind of regulatory merger, the FSLIC does provide assistance—in the form of assets, notes, or cash.

In the past two years, mergers have become more difficult to arrange. Bank holding companies and thrifts can now traverse state boundaries much more readily than before, and consequently the franchise value of a failed thrift in another state has been reduced. Connell (1987) has pointed out a second reason. The FSLIC can no longer afford to take over the problem assets of a failing thrift. But an "unclean bank," containing problem loans that will require considerable management effort to collect, is not an attractive acquisition target. These disadvantages are reflected in the reduced number of mergers,[4] particularly unassisted mergers. As shown in Table 3, unassisted mergers decreased from 166 in 1982 to 4 in 1986, and the number of assisted mergers declined from 46 in 1982 to 22 in 1986.

To take up the slack as the number of institutions needing attention was rising, the Bank Board introduced the management consignment program (MCP) in 1985. Under this program the managers of failing S&Ls are removed and replaced by tried and trusted officers, often from other, more successful thrifts. In 1985 and 1986, over one-third of Bank Board actions against failing institutions were allocations of S&Ls to the MCP. Such allocations cannot be regarded as problem resolutions, however, as participants in the program typically continue to be unprofitable and, hence, remain insolvent. Indeed, it is unclear that the program is stemming the FSLIC's economic losses in the way its creators had hoped.

The juxtaposition of rising demands and declining resources has inhibited FHLBB actions to correct the problems of insolvent and weak S&Ls. As Table 3 shows, 32 S&Ls were merged by supervisory action or with FSLIC assistance in 1980. At the end of that year only 16 GAAP insolvent thrifts remained in operation awaiting disposition. In 1981 and 1982, however, the numbers of problems and actions both rose dramatically, to 222 and 243, respectively, as the S&L crisis escalated with rising interest rates.

[3]Regulatory mergers should be distinguished from voluntary mergers organized without the regulators' involvement.

[4]Catherine England and Thomas Huertas have pointed out two further reasons. Federal Reserve restrictions make bank holding company acquisitions of thrifts unattractive, and the FSLIC's insolvency makes the value of its indemnifications to acquirers of failed thrifts of questionable value.

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Since 1982, the number of resolutions effected has decreased—to just 49 in 1985—as the number of insolvent institutions has risen—to peak at 449 at the end of 1985. Forbearance, a popular political platform in early 1987, was then being forced on a reluctant Bank Board because it lacked the money to deal with the problems facing it. In the mid-1980s, the FSLIC's impending bankruptcy prevented necessary actions from being taken and induced the Bank Board to adopt other, sometimes inappropriate, stop-gap policies.[5] At the same time, allowing insolvent thrifts to continue operating has given them opportunities to "go for broke." As the gamblers tend to lose, and to "lose big," more often than to gain, the demands on the FSLIC have escalated rapidly. Thus, the regulators have allowed an untenable situation—a vicious cycle of deterioration—to develop.

Delay

At the end of September 1986, 445 GAAP insolvent thrifts awaited disposition. Some had been allowed to operate without capital for extended periods of time. GAO (1987) has shown that of the 222 thrifts that were insolvent at the end of 1982, 145 continued to operate four years later, and 80 of them were still insolvent and incurring heavy losses despite the favorable interest rate environment they had experienced in the interim.

At the height of the S&L interest rate crisis in 1982, forbearance had appeared to be a viable policy. It would give thrifts time to use the new powers granted under the Depository Institutions Deregulation and Monetary Control Act of 1980 and the Garn-St Germain Depository Institutions Act of 1982 to adjust their portfolios and recover. It would also allow interest rates to fall as the business cycle progressed. The anticipated decline in rates was expected to reduce S&L costs more rapidly than their revenues, returning many to profitability and solvency. Furthermore, the market value of S&L assets would be increased by falling interest rates, reducing the FSLIC's costs of disposing of those institutions that did not recover.

So early in the 1980s, delaying the declaration of failure appeared to be an acceptable policy to Congress and the Bank Board. But this policy entailed risks. By definition, insolvency means that the value of an institution's liabilities (L) exceeds that of its assets (A). In this

[5]For example, the Bank Board proposed to severely restrict S&Ls', particularly state-chartered S&Ls', powers to make direct investments. It later revised its proposal to allow strongly capitalized thrifts more latitude. The Bank Board has severely curtailed growth. Its demands for faster loan-loss write-offs and higher appraisal standards have encountered strong opposition from the industry.

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situation, it is difficult for a firm, especially one that is not growing, to earn profits and accumulate capital. Achieving these goals requires that the rate of return earned on assets (r) exceed that paid on liabilities (c) by a margin great enough to counterbalance the deficiency in assets.

Where an institution is solvent ($A > L$), any rate of return on assets greater than the rate paid on liabilities is sufficient to ensure profitability. But for an insolvent institution, $r > c$ is a necessary but not sufficient condition for profitability. Absent capital gains or losses the sufficient condition is,

$$\frac{r}{c} > \frac{L}{A}.$$

That is, the greater the degree of insolvency, the higher the return on assets (r) needs to be in relation to the return on liabilities (c) to ensure positive profits.

In an efficient market, earning higher rates of return demands taking additional risks. Managers of solvent firms have their jobs and financial interests at stake, so they are likely to be risk-averse. But managers of insolvent firms have little at stake under the present system of deposit insurance. They expect the Bank Board to relieve them of their positions sooner or later anyway unless they recover. They may be willing to gamble in the hopes of recovery, therefore, because the losses they incur will be borne by others.

The Propensity to Take Risks

The FHLBB has asserted that some activities are more risky for S&Ls than others. In particular, the Bank Board's staff claims that investments in acquisition, development, construction, and commercial loans and direct investments in real estate and service corporations are particularly risky. Data to verify these claims are not publicly available. Moreover, modern finance theory reminds us that it is inappropriate to consider the variability of returns to a single asset in isolation. Rather, the effect of the activity on the risk of the portfolio as a whole is the relevant consideration for institutions deciding whether or not to undertake a new activity.

The fact that these activities became permissible for most S&Ls only recently suggests, however, that inexperience may lead S&Ls to make a larger than average number of mistakes. In this case the activities can be risky both in isolation and in the context of the portfolio as a whole.

The interest rate and credit risks inherent in traditional S&L mortgage lending are now well-known, and procedures are available for

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controlling them. But credit risks in the newer activities may be less well understood. Moreover, there may be an adverse selection problem facing S&Ls entering new markets—the good borrowers may well stay with their traditional lenders while the bad credit risks attempt to convince the new lenders to trust them.

Evidence on Risk Taking

Tables 4 and 5 present data on various forms of potential risk exposure for S&Ls. These tables examine the portfolio composition of thrifts nationwide and in the five states (California, Florida, Louisiana, Oklahoma, and Texas) that have experienced the most problems with their thrifts and/or their real estate markets during the mid-1980s. In the tables, S&Ls are divided into three groups: (1) GAAP insolvent, (2) low capital (that is, positive net worth below 3 percent of assets), and (3) well-capitalized thrifts (with net worth above 3 percent of assets).

Table 4 shows that there is a substantial variation among states in the percentage of assets devoted to direct investments and to acquisition and development loans.[6] Moreover, it tends to be the insolvent firms that engage most prominently in these "risky" activities. For example, insolvent thrifts nationwide and in 4 of the 5 states (but not in Oklahoma) held more commercial loans than the national average for S&Ls. Insolvent S&Ls as a group and in 4 of the 5 states (Louisiana being the exception) held more acquisition and development loans than the solvent institutions for the nation as a whole or in the individual states. Insolvent thrifts nationwide and in California, Oklahoma, and Texas, held a greater proportion of their assets as direct investments than the average S&L.

At the same time, insolvent thrifts also held fewer mortgage assets of all kinds: fewer total mortgages, fewer home mortgages, and fewer mortgage-backed securities. (See Table 5.) Judging exposure on interest rate risk is difficult because the Bank Board does not release the data that would allow estimates of the difference in the duration of assets and of liabilities. Given this limitation, exposure must be inferred from the division of the mortgage portfolio between fixed rate and adjustable rate instruments.

In general, insolvent thrifts nationally and in the states examined held both fewer fixed and fewer adjustable rate mortgages (FRMs and ARMs, respectively) than their solvent counterparts. Exceptions occurred in Florida and Oklahoma, however, where failed thrifts

[6]Data on construction loans are not included because they have not been released by the Bank Board.

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TABLE 4

ASSET COMPOSITION FOR ALL FSLIC-INSURED INSTITUTIONS AS OF SEPTEMBER 30, 1986

Designation	Net Worth Category	Net Mortgage Loans and Contracts	Commercial Loans	Consumer Loans	A&D Loans[a]	Liquid Assets[b]	Direct Investments[c]	Deferred Losses	Goodwill
Total Industry	Less than or = to 0%	62.08	2.33	5.48	5.07	4.78	4.33	2.57	1.48
	Between 0 and 3%	71.76	1.58	4.36	3.65	4.72	3.19	0.60	2.29
	Greater than 3%	70.84	1.74	4.10	2.13	5.63	2.48	0.15	2.24
	Total Industry	70.21	1.76	4.30	2.80	5.32	2.84	0.50	2.18
California	Less than or = to 0%	58.54	1.85	2.32	1.82	3.09	12.14	0.55	0.68
	Between 0 and 3%	78.25	0.32	1.48	0.80	4.07	3.99	0.04	1.88
	Greater than 3%	73.54	1.05	3.40	1.09	4.61	3.88	0.07	1.71
	Total State	73.89	0.92	2.90	1.06	4.42	4.29	0.08	1.70
Florida	Less than or = to 0%	52.88	3.72	4.71	4.31	8.08	1.63	1.26	0.55
	Between 0 and 3%	71.56	2.22	5.73	4.28	4.64	1.67	0.25	2.29
	Greater than 3%	66.27	3.11	5.67	2.19	7.16	2.24	0.22	2.93
	Total State	66.36	2.95	5.60	2.89	6.63	2.05	0.32	2.56
Louisiana	Less than or = to 0%	59.08	3.18	6.79	3.93	5.50	1.05	1.66	0.79
	Between 0 and 3%	69.01	1.77	6.35	2.59	4.24	1.33	1.18	2.57
	Greater than 3%	66.71	0.58	7.00	9.35	3.90	8.37	0.29	2.65
	Total State	65.12	1.59	6.80	6.22	4.43	4.64	0.89	2.11
Oklahoma	Less than or = to 0%	69.99	1.33	7.18	2.84	3.47	1.44	3.48	0.09
	Between 0 and 3%	71.20	2.84	6.50	2.04	3.04	0.81	0.05	0.12
	Greater than 3%	72.35	2.13	6.29	2.49	5.10	1.07	0.04	0.25
	Total State	71.48	2.02	6.50	2.51	4.28	1.13	1.02	0.18
Texas	Less than or = to 0%	57.15	2.72	4.90	20.04	3.48	8.86	1.00	1.37
	Between 0 and 3%	67.27	3.07	3.70	15.02	3.82	7.86	0.15	2.58
	Greater than 3%	66.80	1.69	4.13	15.29	3.65	6.70	0.08	3.64
	Total State	65.35	2.48	4.10	15.98	3.70	7.58	0.27	2.78

[a]Acquisition and development loans.
[b]Cash, deposits, and investment securities excluding valuation allowances.
[c]Residential and nonresidential property and service corporations excluding valuation allowances.
SOURCE: FHLBB Quarterly Financial Statements, September 1986.

TABLE 5

COMPOSITION OF MORTGAGE ASSETS FOR ALL FSLIC-INSURED INSTITUTIONS, ON SEPTEMBER 30, 1986

Designation	Net Worth Category[a]	Net Mortgage Loans and Contracts[b]	Home Mortgages	Mortgage-backed Securities	Fixed-rate Mortgages	Adjustable Rate Mortgages
Total Industry	Less than or = to 0%	62.08	31.93	7.52	26.31	26.39
	Between 0 and 3%	71.76	34.88	17.46	36.83	26.62
	Greater than 3%	70.84	41.45	12.20	32.83	30.77
	Total Industry	70.21	38.89	13.21	33.17	29.31
California	Less than or = to 0%	58.54	26.30	4.85	19.16	31.34
	Between 0 and 3%	78.25	29.34	33.00	48.96	22.17
	Greater than 3%	73.54	40.45	9.60	20.68	43.88
	Total State	73.89	37.30	14.62	26.93	38.44
Florida	Less than or = to 0%	52.88	28.27	7.27	19.11	26.18
	Between 0 and 3%	71.56	45.15	7.23	32.90	29.95
	Greater than 3%	66.27	40.87	12.26	34.27	24.33
	Total State	66.36	40.78	10.59	32.58	25.86
Louisiana	Less than or = to 0%	59.08	33.52	6.47	24.66	21.80
	Between 0 and 3%	69.01	43.39	4.78	29.78	30.31
	Greater than 3%	66.71	43.18	3.98	30.76	21.10
	Total State	65.12	40.52	4.87	28.82	23.50
Oklahoma	Less than or = to 0%	69.99	38.62	5.98	24.43	32.50
	Between 0 and 3%	71.20	40.56	5.74	23.93	34.96
	Greater than 3%	72.35	43.10	8.00	32.68	27.61
	Total State	71.48	41.39	7.05	28.85	30.25
Texas	Less than or = to 0%	57.15	18.62	2.72	16.17	26.70
	Between 0 and 3%	67.27	23.77	7.22	18.56	37.07
	Greater than 3%	66.80	24.19	15.83	29.10	29.28
	Total State	65.35	23.05	9.80	22.22	32.28

[a]Rows do not sum to one because they encompass overlapping categories.
[b]Mortgages on 1 to 4 family residences.
SOURCE: FHLBB quarterly Financial Statements, 1986.

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held more ARMs than the state average. The ratio of FRMs to ARMs is below unity (except in Louisiana) for insolvent thrifts, while it is often above one for solvent S&Ls. From these limited data, insolvent thrifts do not appear to be more exposed than the rest of the industry to interest rate risk, but they do potentially face more credit risk.

The Vicious Cycle

The insolvent savings and loans are typically incurrring heavy losses (see Table 6) causing the degree of their insolvency, and hence the FSLIC's need to redress the growing deficiency in assets, to continue increasing. As few insolvent thrifts recover, demands on the FSLIC's funds escalate. Insolvent thrifts were, for example, experiencing losses at an annual rate of 5 percent of assets in the third quarter of 1986 (Table 6). At this rate, delaying disposal of these thrifts by one year would add $5.6 billion to the FSLIC's resolution costs.

In the fall 1986, there were 3,234 S&Ls: 67.7 percent were well-capitalized with GAAP net worth of 3 percent or better, 18.5 percent were solvent but weak with capital below 3 percent, and 13.7 percent were insolvent.

The data presented in Table 6 show that two-thirds of the insolvent thrifts were incurring negative total and operating profits.[7] These losses occurred despite the fact that the economy was favorable during this period in most parts of the country. Interest rates were lower than at any other time in the decade, the economy was in its fourth year of an expansion, the demand for mortgages was strong, and funds were available to meet the demand.

In this environment, most well-capitalized thrifts, except those in markets depressed by the decline in energy and agricultural product prices, were profitable. For example, 66.9 of the solvent but weak thrifts and 88.4 percent of the well-capitalized savings and loans were profitable in the third quarter of 1986 despite the increasing loan loss write-offs that the Bank Board was imposing at that time.

Inappropriate Responses

This paper has shown that the S&L industry is polarized. The weaker section of the industry is exposed to credit risk, and because

[7]During the second half of 1986, the Bank Board required many S&Ls to take additional loan loss write-offs. Some analysts have explained the losses experienced by S&Ls at this time by referring to these write-offs. However, the present analysis shows that many S&Ls, particularly the insolvent ones, were incurring operating losses in addition to suffering from charges against nonoperating income.

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TABLE 6

INCOME AND PROFITABILITY OF FSLIC-INSURED INSTITUTIONS IN SEPTEMBER 1986

Designation	Net Worth Category	Number of Institutions	Percent in Category	Total Assets (Billions)	Average Return on Assets[a]	Total Industry Profits (Billions)	Number Profitable	Percent Profitable	Net Operating Profit (Billions)
Total Industry	Less than or = to 0%	445	13.70	112.70	−5.00	−1.40	148	33.26	−.74
	Between 0 and 3%	598	18.50	282.50	−0.09	−0.07	400	66.89	−.07
	Greater than 3%	2191	67.70	747.90	0.82	1.54	1936	88.36	1.92
	Total Industry	3234	100.00	1143.00	0.02	0.06	2484	76.81	1.10
California	Less than or = to 0%	30	13.70	13.90	−7.60	−0.26	4	13.33	−.19
	Between 0 and 3%	30	13.70	66.80	0.32	0.05	20	66.67	.00
	Greater than 3%	158	72.40	218.20	1.08	0.59	138	87.34	.73
	Total State	218	100.00	299.10	0.51	0.38	162	74.31	.55
Florida	Less than or = to 0%	19	12.90	7.40	−4.12	−0.07	4	21.05	−.04
	Between 0 and 3%	26	17.60	20.35	0.00	0.00	17	65.38	.01
	Greater than 3%	102	69.30	55.80	0.38	0.05	73	71.57	.06
	Total State	147	100.00	83.60	0.12	−0.02	94	63.95	.03
Louisiana	Less than or = to 0%	26	25.40	4.30	−3.50	−0.04	7	26.92	−.02
	Between 0 and 3%	23	22.50	3.70	−0.79	−0.01	12	52.17	.00
	Greater than 3%	53	51.90	7.50	1.12	0.02	43	81.13	.02
	Total State	102	100.00	15.60	−0.65	−0.03	62	60.78	.00
Oklahoma	Less than or = to 0%	14	26.40	2.80	−2.90	−0.02	0	0.00	−.01
	Between 0 and 3%	11	20.70	1.60	−1.10	0.00	1	9.09	.00
	Greater than 3%	28	52.80	5.40	−0.30	0.00	14	50.00	.00
	Total State	53	100.00	9.90	−1.19	−0.03	15	28.30	−.01
Texas	Less than or = to 0%	66	23.60	16.70	−15.50	−0.65	6	9.09	−.35
	Between 0 and 3%	74	26.50	43.10	−1.90	−0.21	21	28.38	−.20
	Greater than 3%	139	49.80	37.70	0.03	0.00	86	61.87	.00
	Total State	279	100.00	97.60	−3.50	−0.86	113	40.50	−.57

[a]Returns are annualized

SOURCE: FHLBB Quarterly Financial Statement, September 1986.

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its gambles have been largely unsuccessful, it is deteriorating rapidly. The demise of the weaker S&Ls is imposing increasing demands on the FSLIC insurance fund, and at the same time it is prejudicing the successful operations of healthy thrifts. The FSLIC is insolvent and cannot provide the funds necessary to dispose of the problem S&Ls, so it is searching for other ways to contain the deteriorating situation it faces.

One response to the current problem is to reregulate the industry, asking Congress to remove some of the provisions of the 1980 and 1982 deregulation acts. The evidence in this paper suggests that insolvent thrifts should not be allowed *carte blanche* to engage in end-of-game plays. But it presents no evidence either for or against deregulation or reregulation for the industry as a whole. Restraining the weak does not imply that the strong necessarily should be similarly shackled. The question of what powers should be granted to healthy thrifts—or sound banks—is a separate one that is worthy of separate and careful consideration.

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Can Banking and Commerce Mix?

Thomas F. Huertas

The mixture of banking and commerce is hardly a revolutionary concept. Banking and commerce have been mixed in the United States since the birth of the republic, and they remain mixed today. The key questions therefore are: Should banking and commerce be permitted to continue to mix? If so, how should they be permitted to mix, and what regulation, if any, is required when they do mix? These are the questions for which this paper attempts to frame answers.

The Relevance of History

In some discussions of whether banking and commerce should mix, it is asserted that there exists a long tradition of separation between banking and commerce and that this tradition should continue to guide future policy (Volcker 1986; Corrigan 1987). But whatever this tradition says about the activities in which banks can engage directly, it says little about who can own a bank, or the activities in which the affiliate of a bank may engage.[1] Throughout American history, owners of banks have engaged in all types of business activities, including those that would not be permitted for banks themselves. Existing restrictions on what the owner of a bank may do are of relatively recent vintage. Indeed, as a Federal Reserve Board staff study has pointed out, it was not until 1956, when the Bank Holding Company Act prohibited nonbanking corporations from owning two or more commercial banks, that "the basic principle of separation of banking and commerce was established" (Savage 1978, p. 46). And

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The author is a Vice President at Citicorp/Citibank. He would like to thank Robert Eisenbeis for his comments as well as acknowledge useful discussions of the issues in this paper with George Benston, Franklin Edwards, Paul Horvitz, Edward Kane, and George Kaufman. Statements made in this paper are the responsibility of the author and do not necessarily reflect the position of Citicorp or Citibank.

[1]For a fuller discussion of the issues in this section, see Huertas (1986a).

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since 1956, this principle has been applied only to some owners of some banks.

In particular, the law has always permitted individuals to own controlling interests in both a bank and a commercial firm, and throughout American history individuals have simultaneously owned and in many cases managed both a bank and a commercial firm.[2] In the 19th century, for example, Moses Taylor was the chief executive and principal shareholder of National City Bank (the forerunner of Citibank) as well as the chief executive and principal shareholder of a trading company, a gas utility, and an iron and steel company.

Such individual control over banks and commercial firms continues today. For example, Joe L. Allbritton is chief executive and owns a controlling interest in Riggs National Corporation, the parent holding company for Riggs National Bank, the largest commercial bank in the District of Columbia. He also owns a controlling interest in five television stations. Another example is Sam Walton, the chairman, chief executive, and leading shareholder of Wal-Mart Department Stores. He also is the chairman, chief executive, and leading shareholder of Northwest Arkansas Bancshares, a bank holding company headquartered in Bentonville, Arkansas.

Similarly, the law has always permitted nonbank corporations to own some type of bank. Until 1956, any nonbank corporation could own any number of commercial banks.[3] Until 1970, any nonbank corporation could own a single commercial bank. Until 1969, any nonthrift corporation could own any number of thrifts. And any nonbank corporation remains able to own a single thrift.

[2]One exception to this statement consists of the restrictions contained in the Glass-Steagall Act passed in 1933. Section 20 of the act prohibits individuals owning more than 50 percent of a member bank from owning more than 50 percent of an entity that is principally engaged in the underwriting and distribution of securities. Section 32 of the act prohibits an individual from simultaneously serving as an officer, director, or employee of a member bank and an entity that is primarily engaged in the underwriting and distribution of securities. The definitions of "primarily," "principally," and "securities" for the purposes of these sections are a matter of some dispute, but whatever their precise meaning, they are evidently consistent with an individual having a controlling influence over an investment bank, a member bank, and the bank holding company owning that member bank. One example of such an individual is Ira J. Kaufman, who is the chairman and chief executive of Exchange National Bank of Chicago, the chairman and chief executive of its parent holding company, Exchange International Corporation, and the chairman and chief executive of Rodman and Renshaw Capital Group, Inc., an investment bank that underwrites and deals in corporate debt and equity securities ineligible for underwriting directly by member banks.

[3]The National Bank Act of 1864 prohibited a national bank from owning stock in other corporations, but it did not prohibit a nonbank corporation from owning a national bank.

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In 1970, moreover, Congress created a class of commercial banks that could be owned by anybody (Felsenfeld 1985). It did so by redefining the term "bank" for the purposes of the Bank Holding Company Act to be an institution that makes commercial loans *and* accepts deposits payable on demand. Commercial banks that fulfilled one condition but not the other could be owned by any other corporation.

In sum, the law has always allowed some form of corporate affiliation between banks and commercial enterprises.

In practice, corporate affiliation between banks and commercial firms has a long tradition in the United States, dating back to at least 1799 when the Bank of the Manhattan Company was formed as a subsidiary of a company chartered to supply New York City with fresh water. Since then, commercial banks have at various times been affiliated with or owned by insurance companies, shipping companies, department stores, and manufacturers. Thrift institutions have been affiliated with or owned by retailers, insurance companies, securities firms, real estate developers, and electric utilities. And so-called nonbank banks are currently owned by a wide variety of commercial enterprises, including securities firms, insurance companies, and retailers.

Thus, the affiliation of banking and commerce has deep roots in American history. Individuals owning banks have at the same time owned commercial enterprises. Corporations owning banks have at the same time engaged in commerce or owned commercial enterprises. Thus, if history offers any guide to the question of whether banks should be affiliated with such firms, it points in the direction of allowing such affiliations.

The Benefits of Allowing Banking and Commerce to Mix

Competition among suppliers benefits customers in terms of lower prices and greater convenience, and it benefits society by boosting productivity and, ultimately, output. Free entry is the best way to promote competition, and allowing banking organizations to enter commerce, and commercial firms to enter banking, is certainly procompetitive.

The benefits of allowing such free entry are primarily twofold. First, it would eliminate any market power that the current system of financial regulation may confer on financial firms. Second, free entry would allow financial firms to develop more comprehensive

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financial services that may offer improvements in convenience and/or reductions in price.[4]

A trend toward allowing freer competition in financial services is already under way, and it has produced positive benefits. The customer now pays lower prices for financial services, receives higher rates of return on his savings, and is offered a greater choice among financial services. Subsidies from one group of customers to another have been reduced; the prices that customers pay are more in line with the cost that financial firms incur in producing the service. Financial firms have also been forced to become more efficient, to bring costs into line with the lower prices that customers pay (Bailey 1986). In sum, freer entry has made financial firms more competitive.

Entry into financial services is still not completely free, however. Restrictions on who may own a bank and on the activities in which the affiliates of banks may engage mean there still are significant barriers to entry into investment banking, insurance, and local deposit banking markets. These barriers raise the prices that customers pay for financial services. Specifically, limits on entry into investment banking tend to raise the underwriting fees that issuers must pay to float new securities (Silber 1979; Pugel and White 1985). Limits on entry into insurance raise the premiums that customers pay (Joskow 1973; Consumer Federation of America 1987). Limits on entry into local deposit banking markets raise loan rates and service fees and lower deposit rates, all to the detriment of banks' customers, especially small businesses and consumers who have few financing alternatives (Heggestad 1979).

Removing regulatory barriers to entry is the best way to ensure that markets will be competitive, that costs and profits will not be excessive, and that prices will be kept to a minimum. If anyone can legally enter the industry, no firm can exercise market power for very long unless there are natural barriers to entry (Bailey and Baumol 1984). And in financial services there do not appear to be any significant natural barriers to entry.

A second benefit to consumers of financial services would come from firms' passing along economies of scope to customers. Economies of scope arise when a factor needed to produce one product can be used at little or no additional cost to produce another. This means that a firm that produces the two products jointly can do so more cheaply than two independent firms that produce the two products

[4]Free entry would also allow financial firms to respond to market forces and to diversify their income, and this would potentially enhance the safety of financial instruments, including deposits, that they issue.

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separately. Customers therefore get a lower price on one or both of the two products, and firms that produce the products jointly tend to gain market share at the expense of firms that produce the products separately (Panzar and Willig 1981).

Financial services are particularly likely to be characterized by economies of scope, for information is a key factor in the production of financial services. Consulting information does not destroy it; the information remains intact and can be used to support other products. For example, many of the same data needed to grant a mortgage can be used to sell homeowner's insurance. The firm that offers both services need collect the information only once and can pass the resultant cost savings along to the consumer. In addition, the seller of the mortgage knows that the customer is a likely candidate for insurance, so that marketing expense can be much reduced. This saving can also be passed along to the consumer.[5]

In sum, allowing banking and commerce to mix would enhance economic efficiency. Benefits of economies of scope would be passed along to customers for financial services in the form of lower fees or higher rates of return on financial assets, such as deposits or securities, that customers purchase from or through financial firms. Because no financial firm would be protected from competition, no financial firm or group of firms would be able to earn excessive profits or incur unnecessary costs. Customers would be able to purchase the widest possible variety of financial services at the lowest possible price. Customers would decide for themselves, rather than have regulators decide for them, whether they were better served by specialized or by diversified financial firms.

Should Banking and Commerce Mix?

Restrictions on the affiliation between banking and commerce should be imposed only if such affiliations clearly threaten to impose costs on society that outweigh the benefits outlined above of allowing banking and commerce to mix. Opponents of allowing such mixing claim there is a clear threat. They allege that allowing banking and commerce to mix would make society undemocratic, the financial system unfair, the payments system unstable, and deposits unsafe. How clear and present are these dangers?

[5]A case in point is Metropolitan Life's recent decision to originate mortgages, homeowner's insurance, and mortgage insurance through its real estate brokerage subsidiary, Century 21.

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A Democratic Society

It is often claimed that allowing banking and commerce to mix would lead to an undue concentration of resources. The concern here is not about market power but about the size of firms themselves. The contention is that free entry would produce firms of great size, and that this would produce great evil, for it would confer on a firm or group of firms an undue influence over the political process.

This argument has great populist appeal and is practically as old as the republic itself. It can be traced back at least to Andrew Jackson's "war" in the 1830s against the Second Bank of the United States, and elements of the argument were already present in the debates concerning the chartering of the nation's first banks during the late 18th and early 19th centuries (Hammond 1957, pp. 144–71; Schwartz 1947).

It is instructive to note that in the bank war of the 1830s, great numbers won out over great size, and that generally remains the rule in politics today. Fears that free entry into financial services would result in excessive political power seem overdrawn. Free entry may produce financial supermarkets, but no one financial supermarket will necessarily have political power. There will be many financial supermarkets, and each may have some political influence. To the extent that they will have such influence, however, it is likely to result from their acting as a group, much as members of trade associations now do.

In fact, allowing free entry into financial services is likely to reduce the concentration of political power that currently rests in specialized firms and their trade associations. Any law that restricts entry confers wealth on the people owning the entities that are protected from competition, and this tends to create a constituency in favor of the law (Stigler 1971). The current system of financial regulation is no exception. Regulation protects specialized financial firms from competition and increases their profit-making potential. Consequently, specialized firms have the incentive to reinvest some of the excess profits generated by regulation to lobby for a continuation of the very system of regulation that generates those excess profits. In this sense, excessive political power is far more likely to result from restricting entry, rather than from allowing entry, into financial services.

A Fair Financial System

How fair should the financial system be, and to whom should it be fair—to competitors or to customers? Much of the debate about financial regulation has been phrased in terms of fairness to competitors, creating a "level playing field" so that what is right for one firm is

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right for another. But many regulatory regimes might meet such a standard. The relevant question is, Which of these regimes is fairest to customers and to society as a whole?

By the standard of fairness to customers, it is hard to do better than allowing free entry into financial services. Allowing anyone to own a bank and allowing a bank's nonbank affiliates to engage in any type of activity affords customers the widest choice among financial services plus the prospect of paying lower prices for the financial services they do decide to buy. Some observers, however, contend that allowing free entry would inevitably lead to grave abuses involving conflicts of interest or to an undue concentration of market power in the hands of a few large financial firms, and that these adverse effects would outweigh the positive benefits of greater choice and lower cost resulting from free entry.

Conflicts of interest are universal, and so, therefore, is the possibility of abuse. In particular, all of the potential conflicts of interest that allowing free entry into financial services would allegedly create already exist within financial firms today. Is more competition within financial services likely to increase or reduce the possibility that abuses will arise?

In general, more competition reduces the possibility for abuse. It gives the customer more options and therefore makes him less vulnerable to the actions of any one vendor. The firm that provides many services must be careful in providing each, lest poor performance in one area lead the customer to take all of his business elsewhere (Peltzman 1979).

In particular, allowing free entry into financial services practically eliminates the possibility of abusive tie-ins. Tying is economically harmful only if a company has market power in at least one of the two products that are tied together.[6] Since free entry is the best way to minimize the market power that any firm may have, allowing free entry into financial services would help prevent abusive tie-ins and promote the beneficial bundling of banking and nonbanking services.

Free entry would also help prevent financial firms from amassing monopoly power, that is, from obtaining an undue concentration of economic resources.[7] Free entry into financial services does not mean

[6]Tie-ins that are economically harmful are generally also illegal. See, for example, Jefferson Parish Hospital District No. 2 et al. v. Hyde 104 S.Ct. 1551 (1984).

[7]Indeed, barriers to entry are a precondition for market power. High concentration ratios are meaningful indicators of market power only if there exist barriers to entry into the relevant market. Conversely, if there are high barriers to entry to the relevant market, even extremely low concentration ratios are consistent with the possession of market power by firms in the market (Landes and Posner 1981).

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that one firm will be permitted to become a financial supermarket, but that any firm will have the opportunity to do so. Consequently, free entry into financial services is likely to produce many financial supermarkets, none of which has monopoly power.[8]

Free entry, however, would force all financial firms to become more efficient. In other words, some specialist firms might have to reduce their prices (and costs) or improve the quality of their services, much as the vegetable store must offer fresher produce to compete with the supermarket. This is a more strenuous and perhaps less profitable world than many specialist firms enjoy today, and that prospect undoubtedly motivates many of them to oppose allowing free entry into financial services.

A Stable Payments System

Opponents of mixing banking and commerce cite risk to the payments system as a primary reason to restrict affiliations between banks and commercial enterprises (Volcker 1986; Corrigan 1987). But the stability of the payments system has nothing to do with who owns a bank or whether a bank does or does not have nonbank affiliates. Consequently, controls on who may own a bank or on the activities in which a bank's nonbank affiliates may engage are not required to assure stability in the payments system. If reforms in the payments system are needed, they concern changes in the way payments are settled.[9]

The payments system consists principally of two large electronic payments networks, FedWire and CHIPS (Clearing House Interbank Payments System). FedWire is the principal component of the domestic payments system; CHIPS is the principal component of the international dollar payments system. In terms of value, these two systems together process over 85 percent of all payments made in the United States each day.

Essentially the payments system is nothing more than a switching mechanism that routes funds from one bank to another. Risk in the payments system arises because banks extend credit to one another during the payment process. Controlling risk in the payment system

[8]Free entry into financial services is unlikely to eliminate specialized, single-service financial firms. Indeed, as long as entry is free, specialized firms will retain the potential to skim the cream off any market that financial supermarkets show any sign of successfully monopolizing. Thus, financial firms may grow to a greater size as a result of freer entry into financial services, but no financial firm is likely to have any more market power than it does now. In fact, each financial firm is likely to have a good deal less.

[9]For a fuller discussion of the issues in this section, see Huertas (1986b).

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therefore amounts to ensuring that banks adequately control the credit they grant to each other during the process.

Risk to the stability of the payments system is systemic risk. Such risk exists because the failure of one participant to settle its obligation to the payments system could lead other participants to be unable to settle and so lead to an interruption in the payments process.

There is no systemic risk on FedWire. FedWire cannot collapse because the Federal Reserve guarantees all payments made over FedWire. Thus, if a bank fails, no other bank is affected. The system remains intact and stable, like the telephone network does when a single phone is disconnected.

The only party at risk on FedWire is the Federal Reserve or, more exactly, the Treasury, in that any losses sustained by the Federal Reserve as a result of its guarantee of payments made over FedWire would merely serve to reduce the Fed's net contribution to the Treasury. Thus, risk on FedWire should be compared to the risk that government expenditures and receipts may not come in at their budgeted levels and that the agency responsible for the shortfall may come under increased congressional scrutiny and/or executive branch supervision. But why should the Fed take this risk? Should the Fed guarantee payments over FedWire or even operate a payments system at all?

Some degree of systemic risk exists on CHIPS. CHIPS could collapse if one of its participating banks were to fail, but this systemic risk has nothing at all to do with the degree to which participants on CHIPS are or are not affiliated with nonbank enterprises.

On CHIPS the receiving bank is exposed to the sending bank for the net amount of payments due from the sending bank. Thus, the receiving bank is exposed to any risk that may be posed to the sending bank by its nonbank affiliates. The receiving bank controls for this risk, as well as all other risks that may be posed by the sending bank, by setting a limit on the net amount of payments that it agrees to receive from the sending bank (the bilateral credit limit). In addition, the system sets a limit on the total amount that any one bank can owe to all other banks on the system (net debit sender cap) that is equal to a fraction of the sum of the bilateral credit limits that the other banks in the system set for that bank. In this way receiving banks provide an independent assessment of the risk posed by sending banks, including any risk that may arise as a result of the sending bank's having nonbank affiliates.

The systemic risk on CHIPS arises solely from the provisional nature of the net settlement procedure used. Payments over CHIPS are not final when made, but contingent upon settlement at the end

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of the day. If one bank cannot settle, then others may not be able to settle either, and the payments involving one or more banks on the system may have to be deferred via a system delete or system unwind. Such procedures have never had to be invoked, and the system of bilateral credit limits and net debit sender caps makes it unlikely that they ever will. Nonetheless, there is a remote possibility that CHIPS could collapse, and to remove this possibility the members of CHIPS are currently considering the adoption of "settlement finality." Under settlement finality all payments made over CHIPS would be final as far as the sending and receiving banks are concerned. In the event that a bank with a net debit to the system fails, other participants on CHIPS would have to make good the failed bank's payment to the system so that settlement could occur.[10] In that case, the failure of one bank would not impair the ability to settle payments made on CHIPS. CHIPS would remain intact and stable.

In sum, risk to the stability of the payments system is not a reason to restrict who may own a bank or to limit the activities in which a bank's nonbank affiliates may engage. FedWire is inherently stable, and changes in the way CHIPS is settled will make CHIPS stable. Restricting who may own a bank or restricting the activities in which a bank's affiliate may engage will not affect the stability of FedWire or CHIPS. Consequently, allowing the mixture of banking and commerce is perfectly consistent with maintaining the stability of the payments system.

Safe Deposits

One of the primary objectives of financial regulation is to enhance the safety of consumer deposits. But federal deposit insurance does this completely. Deposit insurance protects consumer deposits from all risk, including any risk that may arise as a result of a bank's affiliation with nonbank enterprises.[11] Consequently, allowing or prohibiting the mixture of banking and commerce has no effect on the safety of consumer deposits as far as consumers are concerned. Any risk to a bank that may arise from a bank's affiliation with non-

[10]Adoption of such a rule requires the resolution of a number of issues, and these are currently under discussion among the members of the clearinghouse. The issues include fixing the rule by which the amount owed to the system by the failed bank would be apportioned among the other participants as well as establishing some provision to ensure the liquidity of the settlement (so that the banks obligated to cover the position of the failed bank could make available the necessary funds promptly enough for settlement to occur).

[11]It should be noted that an individual can insure a truly staggering amount of deposits. By depositing $100,000 in each of the nation's 14,000 banks a consumer or corporation could obtain up to $1.4 billion in FDIC-insured deposits.

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bank enterprises is a risk borne by the deposit insurance fund and the bank's uninsured depositors and creditors.

That leads to the question of deposit insurance reform. Much of the debate about how to reform financial regulation centers around the question: In what activities should an institution that issues federally insured deposits be permitted to engage, either directly or through affiliates? Much of the debate about how to reform the deposit insurance system centers around the question: Is the financial guarantee provided by deposit insurance worth more or less than the premium paid to the deposit insurance agency? Are these two questions related, and if so, what light does this shed on the question of mixing banking and commerce?[12]

Deposit insurance is a financial guarantee given to insured deposits. The price of this guarantee is the premium paid to the deposit insurance agency; in the case of FDIC insurance, it is one-twelfth of 1 percent of the bank's domestic deposits.[13] The value of the guarantee is equivalent to the value of a put option on the stock of the bank. This value depends on whether regulators allow such a put option to go "in the money"—that is, on whether they allow banks to operate with negative net worth. If regulators do not—if banks are promptly reorganized or recapitalized if and when they become insolvent—the value of the guarantee given by deposit insurance is zero, and consequently less than the positive premium paid for it. If the value of deposit insurance is less than the premium paid for it, deposit insurance cannot be said to subsidize banks or to induce banks to take excessive risk, either directly or indirectly, through their affiliation with nonbank enterprises.

Promptly reorganizing or recapitalizing banks if and when they become insolvent, is precisely what bank regulators are supposed to do. If there is a problem in the deposit insurance system, it has arisen for two reasons. One is that regulators have permitted banks to operate with negative net worth. The other reason is that regulators on occasion have resolved bank failures so as to protect uninsured depositors and creditors of the bank and, in some instances, so as to protect creditors of the parent holding company as well. Such ex post extensions of insurance to liabilities that are de jure uninsured have led some observers to contend that investors regard these uninsured liabilities to be de facto or ex ante insured. As a consequence, these

[12]For a fuller discussion of the issues in this section, see Huertas and Strauber (1986a).

[13]Note that only the first $100,000 of a depositor's domestic deposits are insured. Since the premium is due on all domestic deposits, the premium rate relative to insured deposits is higher for banks that fund with uninsured domestic deposits.

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same observers assert, the value of the guarantee given by deposit insurance exceeds the premium paid for it, so that deposit insurance is alleged to subsidize banks and to induce banks to take excessive risk.

Regardless of whether such assertions are true or false (and there is evidence to suggest that they are false [Huertas and Strauber 1986c]), the source of the alleged problem is not deposit insurance per se, but bank failure determination and resolution policies. Consequently, the key to reforming deposit insurance is to reform the way in which bank failures are determined and resolved. Banks should be promptly reorganized or recapitalized when they become insolvent, and bank failures should be resolved in a manner that does not protect the creditors of the bank's parent holding company or of its nonbank affiliates.

Such reforms in policies for resolving bank failures would solve the problems facing the deposit insurance system. Separating banking and commerce does not. Thus, deposit insurance cannot be cited as a reason to prevent the affiliation of banking and commerce.[14]

In sum, the public would benefit from allowing free entry into financial services. Customers would benefit in terms of greater convenience and lower cost. The stability of the payments system would be unaffected. Consumer deposits would remain safe. The potential for abuses caused by conflicts of interest would be reduced, as would the potential for firms or groups of firms to amass excessive political power.

These results hold regardless of the type of nonbank firm that would affiliate itself with a bank or own a bank. Consequently, there is no reason to restrict who may own a bank or to limit the activities

[14]The objection that deposit insurance gives firms affiliated with banks an unfair advantage over other firms is also no reason to prevent affiliation between banking and commerce. As long as any firm can own a bank, deposit insurance would be an advantage open to all, and therefore no competitive advantage at all. Moreover, if banks are promptly reorganized or recapitalized when they become insolvent, deposit insurance is not an advantage to anyone, in the sense that there would be no subsidy from deposit insurance. Thus, deposit insurance could not be used by anybody to subsidize entry into anything.

Similarly, there is the notion that allowing the affiliation of banking and commerce would somehow aggravate the "too big to fail" problem. But this is not the case. The issue of whether a firm is too big to fail does not depend on whether that firm is a bank. At various times automobile companies (Chrysler), defense contractors (Lockheed), and securities firms (Bache) have been considered too big to fail. Moreover, it is possible to solve the problem as it may apply to banks, first by resolving all bank failures in a manner that does not protect the creditors of a bank's parent or nonbank affiliates, and second, by promptly reorganizing or recapitalizing banks when they become insolvent. Such steps are possible even for very large banking organizations. For details on how this can be done, see Huertas and Strauber (1986a).

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in which a bank's nonbank affiliates may engage. Banking and commerce should be allowed to mix.

What Should Banks Do?

If banking and commerce should be permitted to mix, is there any rationale for limiting what a bank can do? What should constitute "banking," or what should banks be permitted to do directly?

If there is a rationale for limiting the activities of banks, it must be based on distinctions between banks and other firms. Perhaps the most important such distinction is that a different closure rule applies to banks. Unlike other firms, banks do not declare bankruptcy; indeed, the bankruptcy code does not apply to banks. Instead, the chartering agencies are responsible for monitoring the solvency of banks and for ensuring that banks that become insolvent are promptly reorganized or recapitalized.[15] And as noted above, if the chartering agency is able to reorganize or recapitalize a bank at the point where its net worth is equal to zero, the deposits of the bank will be safe.

This suggests that what a bank should be permitted to do should depend on how easy it is to monitor the solvency of the bank. That in turn depends on whether others, in addition to the chartering agency, monitor the bank. Currently, the chartering agencies share responsibility for monitoring the solvency of the bank with uninsured depositors and general creditors. If these investors expect they will be exposed to loss in the event the bank fails, then they will monitor the solvency of the bank. In particular, no uninsured creditor will lend funds to a bank he considers to be insolvent, and banks that are close to insolvency will find it increasingly difficult to fund their activities with uninsured liabilities. Consequently, uninsured creditors could give an early warning to regulators as to when a bank is becoming insolvent.[16] Thus, if a bank largely funds itself through

[15]Other distinctions between banks and nonbank firms, such as deposit insurance and access to the discount window, are really part and parcel of the different closure rule applied to banks. Deposit insurance is in effect a performance bond given to small, and presumably unsophisticated, depositors that chartering agencies will reorganize or recapitalize banks whose net worth has been exhausted. The small depositor therefore need not be concerned that the chartering agency will fail to close a bank that has become insolvent. Access to the discount window is supposed to prevent a bank that is solvent but temporarily illiquid from failing. Nonbank firms, however, can fail solely because they are illiquid (that is, cannot refund maturing liabilities).

[16]Uninsured depositors will provide such an early warning by reducing the volume of funds they are willing to place with the bank and/or by raising the rate of return they demand on their deposits. They will exert such discipline if they expect to be exposed to the possibility of loss (of principal and/or liquidity) in the event the bank should fail. And regulators can reinforce such expectations by resolving the bank failures that do occur in a manner that exposes uninsured depositors and general creditors to loss.

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uninsured liabilities, there is little need to define what the bank can or cannot do. That can be left for the market to determine. In effect, the bank will have to confine itself to activities that yield returns sufficiently high and sufficiently stable to ensure the degree of safety desired by depositors.

A similar result would hold if the bank issued subordinated debt. Holders of such debt would monitor the condition of the bank, for they would bear the first portion of any loss the bank incurred after its equity was exhausted. To protect themselves, investors in subordinated debt would build in covenants allowing them a greater say in the bank's affairs when the net worth of the bank declined to zero or close to zero. Thus, subordinated debt would make it easier for the chartering agency to determine when the bank was close to insolvency, and it would also provide a cushion of additional protection to deposits, thereby making deposits safer.

Moreover, if such subordinated debt were required to be convertible into equity when the net worth of the bank reached zero (or some small positive amount), it could provide for an automatic recapitalization of the bank in the event the bank "failed" (that is, in the event its equity capital were exhausted).[17] In effect, mandatory convertible subordinated debt would provide a parachute that would ensure a soft landing for the payments system and deposit insurance funds. The covenants on the debt that trigger the mandatory conversion into equity would be the ripcord.

With such a safeguard in place, there would be no need to restrict the activities in which a bank could engage. Once again, that could be left for the market to determine. Banks that engaged in overly risky activities would find themselves unable to issue subordinated debt at reasonable rates. And if banks were required to fund a certain percentage of their assets with subordinated debt, they could not expand unless they could issue additional subordinated debt.

If a bank does not issue subordinated debt, and if it funds itself exclusively through insured deposits, then the chartering agency will be the only entity responsible for monitoring the solvency of the

[17]See, for example, Benston et al. (1986, pp. 192–95). Such subordinated debt could be issued either to outside investors or to the bank's parent holding company. In the latter case, the market discipline exerted on the bank would be indirect, through discipline exerted by debt holders of the holding company. Since dividends and interest from the bank to the holding company would service the holding company debt, and assuming there would continue to be minimum equity requirements and dividend restrictions on the subsidiary bank, the mandatory conversion of subordinated debt into equity in the bank could jeopardize the ability of the bank to pay dividends to the holding company and of the holding company to service its debt. This would induce investors in the holding company's debt to monitor the condition of subsidiary banks.

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bank. To this end, the chartering agency has various tools at its disposal, including periodic reporting requirements and on-site examinations. Are restrictions on the activities in which a bank may engage also required?

Strictly speaking, such restrictions are not necessary if the chartering agency can monitor the solvency of banks under its supervision so that banks can be promptly reorganized or recapitalized when they become insolvent. If current reporting and examination techniques are insufficient, they could be improved through on-line reporting, statistical analysis, more frequent examinations, and a greater emphasis during examinations on detecting fraud (which remains the primary cause of bank failures). Another method would involve allowing the chartering agency to take over the administration of the bank through a conservatorship if the bank's capital fell below a minimal positive level (say 1 percent of assets), or if the bank had to borrow some multiple of its capital from the discount window over an extended period of time.

Thus, tightly defining what a bank can do directly does not seem necessary, particularly for banks that issue subordinated debt or derive a large proportion of their funding from uninsured liabilities. In such banks, the uninsured creditors can be expected to keep a sharp eye on the solvency of the bank and to refuse to fund any bank they believe to be insolvent or close to being insolvent. In such cases, regulators can take their cue from the market as to when a bank becomes insolvent and needs to be reorganized or recapitalized.

In sum, what banks should do, or what should constitute "banking," does not appear to be susceptible to easy definition. Perhaps the best that can be said is that it does not much matter what banks are permitted to do as long as the activities themselves are lawful and banks are promptly reorganized or recapitalized when they become insolvent.

How Should Banking and Commerce Be Allowed to Mix?

If banking and commerce do mix, should the owner be required to conduct all activities within the bank itself, or should the owner be free to structure the corporation in any manner he chooses, provided the entity that issues deposits is regulated as a bank? The analysis of the previous section suggests that all activities could be conducted within the bank itself, and the private banks of the 19th century and today's universal banks are examples of this.

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There is, however, no reason to require that all activities be conducted within the bank itself. As long as the condition of the bank can be monitored and banks that become insolvent are promptly recapitalized or reorganized, any corporation should be free to own a bank; a bank's nonbank affiliates or subsidiaries should be able to engage in any activity whatsoever; and the owner of the bank should be free to decide which activities to conduct within the bank and which activities to conduct in nonbank affiliates or subsidiaries.

If some activities are conducted outside the bank, what restrictions should be imposed on transactions between the bank and its nonbank affiliates? Strictly speaking, no such restrictions are necessary if the bank funds itself largely through uninsured deposits or if it issues subordinated debt. In such cases, the uninsured depositors or creditors would monitor all the risk to which the bank might be exposed, including any risk that might result from its affiliation with nonbank enterprises. It could be left to the market to determine what restrictions, if any, are appropriate, and, over time, banks and investors would develop various sets of covenants regarding transactions with affiliates that would protect depositors and/or subordinated debtors, much as covenants in debt issued by nonbanks protect bondholders.

Thus, if restrictions on interaffiliate transactions are needed, they are required only to the extent that the bank funds itself with insured deposits and only to facilitate regulators' ability to monitor the solvency of the bank. However, overly restrictive limitations on interaffiliate transactions, by limiting the ability of banking organizations to serve their customers effectively, could actually increase the likelihood that the bank will become insolvent. Thus, in designing restrictions on interaffiliate transactions, a balance must be struck between ease of monitoring and ease of conducting business.[18]

Where should that balance be struck? One approach is to err on the side of safety, to impose restrictions that would enable the bank regulator to confine its monitoring activity to the bank itself and to ensure that the deposits of a bank with affiliates are at least as safe as the deposits of a bank without affiliates. The following represents one set (and not necessarily the only set) of restrictions on interaffiliate transactions that would fulfill these criteria:

[18]Volcker (1986) asserts that restrictions should completely insulate all banks from all risk that might be assumed by nonbank affiliates. Strictly speaking, this standard implies that the equity as well as the deposits of the bank should be protected, and that it is more important to protect deposits completely from the risks assumed by nonbank affiliates than to protect deposits against risks, such as credit risk, that are directly assumed by the bank itself. For a fuller discussion of this and the other issues in this section, see Huertas (1986c).

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1. Impose limits on dividends from the bank to the parent, such as those imposed on national banks. Coupled with the requirement that all banks, regardless of parentage, maintain minimum capital, this would prevent a bank from upstreaming an excessive amount of resources to its parent. It would also give depositors and general creditors what amounts to a first lien on the assets of the bank.
2. Impose a requirement that all extensions of credit by a bank to its parent or affiliates be fully and adequately collateralized.[19] This restriction removes the need for the bank regulator to monitor the condition of the affiliate to which the bank may extend credit, and it would actually make credits extended to affiliates considerably safer than credits extended to nonbank affiliates.
3. Impose a requirement that all other transactions between a bank and its parent or affiliates be conducted on an arm's-length basis, that is, on terms that are at least as favorable to the bank as those that would prevail in comparable transactions between the bank and unaffiliated third parties. This restriction would make it impossible for the parent or nonbank affiliates to siphon off an excessive amount of resources from the bank. But it would leave the parent and the nonbank affiliates free to transact with the bank on terms that do not harm the bank or that plainly favor the bank. Again, such a restriction removes the need for the bank regulator to monitor the condition of the nonbank affiliates.
4. Impose a requirement that a bank's parent and its nonbank affiliates explicitly state to investors that their liabilities are not deposits and are not covered by federal deposit insurance. This restriction would go beyond full disclosure to require that banking organizations give investors fair warning they are not buying a deposit when they buy a security issued by a bank's parent or its nonbank affiliates. This extra precaution would act to preserve the reputation of the bank should either its parent or nonbank affiliates get into trouble.

Together, these four restrictions confine the bank regulator's monitoring task to the bank itself, and they would more than adequately protect the deposits issued by a bank with affiliates, in the sense that they would make those deposits at least as safe as the deposits issued

[19]An exception to the collateralization requirement could be made in the case of intraday overdrafts by affiliates of their accounts on the bank. On CHIPS the risk to the sending bank of such overdrafts is monitored by the receiving bank, and on FedWire the overdraft limit of the bank itself vis-à-vis the Fed may be a more efficient monitoring mechanism than the collateralization of the overdrafts.

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by a bank without any affiliates at all. In fact, under such restrictions the deposits of a bank with affiliates would likely be a good deal safer than the deposits of a bank without affiliates because the bank with affiliates could potentially draw on a "hidden reserve"—the resources of those affiliates.

Aside from these four restrictions, no further restrictions on a bank's relationship with its parent or nonbank affiliates are necessary. In particular, no further restrictions need be placed on cross marketing or on operating the bank and its nonbank affiliates in tandem with one another. No requirements need be imposed on the capital that the parent holding company must maintain. All that is required is that the above restrictions be enforced. And as noted above, even these restrictions are not necessary if the bank issues subordinated debt or if the bank funds itself largely through uninsured liabilities.

Conclusion

Regardless of what banks should be permitted to do, anyone should be permitted to own a bank, and banks should be permitted to affiliate themselves with any type of nonbank enterprise. Affiliations between banking and commerce have been common throughout American history, and they continue today. They are beneficial and fair to customers. They do not jeopardize the safety of consumer deposits or threaten the stability of the payments system. Consequently, banking and commerce should be permitted to mix.

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Expanding Banking Powers: The Present Debate

Robert A. Eisenbeis

The paper by Thomas Huertas on commingling banking and commerce is useful because it raises a number of interesting and important issues relevant to the present debate over expanded powers for banking organizations—issues that are on the minds of both policy makers and those in the financial services industry.

The paper has several key sections. The first is a history section that attempts to answer the question posed in the title of the paper "Can Banking and Commerce Mix?" Not surprisingly, the conclusion is yes. More important, however, is the fact that the conclusion follows logically from the historical review that indicates these activities always have been mixed.

Huertas's analysis debunks the notion found elsewhere that there has been a traditional separation between banking and commerce.[1] The evidence shows there have never been restrictions on individuals owning or having substantial interests in banks and nonbanking firms. Moreover, throughout the 19th century, there were numerous instances of corporate affiliations between banks and a wide range of commercial enterprises, including public utilities, water companies, railroads, chemical companies, and other nonfinancial and financial firms. The paper documents and illustrates quite well the various kinds of affiliations that existed.

The present separation between banking and commerce is very recent, dating back to the Bank Holding Company Act of 1956.[2] That act broke up the Transamerica Corporation and prohibited any firm

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[1]See, for example, Corrigan (1987), Volcker (1986), and Fein (1986).

[2]The principal exception, as Huertas points out, is the prohibition of the combining of investment and commercial banking in the 1933 Glass-Steagall Act.

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owning two or more banks from owning companies other than those whose business was closely related to banking. The subsequent rise of one-bank holding companies, which were not subject to the activity prohibitions in the 1956 act and thus free to acquire commercial affiliates, caused great congressional concern during 1968–69 and culminated in passage of the 1970 amendments to the Bank Holding Company act of 1956.[3] The 1970 amendments prohibited any company owning a bank that both accepted demand deposits and made commercial loans from engaging in any financial or commercial activity that was not "so closely related to banking . . . as to be a proper incident thereto." The interesting question following from Huertas's analysis is why there has never been similar concern about the commingling of banking and commerce through individual ownership that seems to have accompanied corporate ownership of banking and commercial firms.

A small quibble is possible with one portion of this history section. In discussing the 1970 amendments, Huertas suggests that, by revising the definition of a bank, Congress purposefully created a class of banks that could be owned by any individual or corporation outside of the activity restrictions of the act. Review of the legislative history of the 1966 and 1970 amendments to the 1956 Bank Holding Company Act suggests a different interpretation.[4] The original 1956 act defined a bank so as to include both savings banks and nondeposit trust companies. Experience with the act suggested that this definition was too broad. The 1966 amendments modified that definition so as to exclude savings banks and trust companies by defining a bank to be any company that accepted demand deposits. The Senate report on this change indicated that the intent of the act was to limit undue concentration and control of bank credit and to prevent abuses of bank subsidiaries by bank holding companies to the benefit of nonbank subsidiaries. It further stated that this purpose could be achieved without extending the act to savings banks.[5] Natter (1983) indicates that even with the revision, coverage was too broad, so further modifications were made in the 1970 amendments. Fischer (1986, p. 159) notes that the Senate report explained:

> The definition of "bank" adopted by Congress in 1966 was designed to include commercial banks and exclude those institutions not engaged in commercial banking, since the purpose of the act was to restrain undue concentration of commercial banking resources

[3]See Fischer (1986).

[4]This discussion is based on Natter (1983) and Fischer (1986).

[5]Senate Report No. 89-1179, 89th Congress, 2d sess., 1966.

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> and to prevent possible abuses related to the control of commercial credit. However, the Federal Reserve Board has noted that this definition may be too broad and may include institutions which are not in fact engaged in the business of commercial banking in that they do not make commercial loans. The committee, accordingly, adopted a provision which would exclude institutions that are not engaged in the business of making commercial loans.

Given this history, it is unlikely that Congress was attempting to open up bank ownership to nonbanking organizations. Rather, Congress apparently intended to exclude from coverage of the act institutions like the Boston Safe Deposit Corporation that were not primarily engaged in commercial banking.[6] In making such refinements, Congress unintentionally opened the possibility for commingling commerce and insured deposit taking.

In the second main section of his paper, Huertas shifts his attention to a general discussion of the benefits of permitting the commingling of banking and commerce. The conclusion that positive social benefits would result is rooted in a theoretical discussion of the benefits of increased competition and the preservation of free entry into markets. The only empirical evidence cited suggests that some of the markets that banking organizations would be most likely to enter if permitted (for example, insurance and investment banking) have been characterized by abnormally high profits and prices. Presumably, prices would fall and abnormal profits would disappear if bank entry were permitted. There is no evidence cited, however, on the actual experience in those nonbanking markets in which banking organizations have been permitted under existing provisions of the Bank Holding Company Act.[7]

Turning from the theoretical discussion to the present debate over whether banking and commerce should be permitted to mix, Huertas suggests that restrictions could be justified only if the social costs exceed the benefits. He examines four common arguments about why these social costs might be high. Net social costs might result because free entry might (1) lead to bigness and the abuse of political power, (2) lead to inequities in the functioning of markets, (3) pose a threat to the safety of the payments system, or (4) adversely affect the safety of bank deposits.

With respect to the issues of fairness, which include the first two sources of social costs mentioned, Huertas correctly points out that

[6]Boston Safe was subsequently acquired by American Express and became an entry vehicle for American Express into the deposit taking business in the U.S.

[7]For reviews of this evidence see Fischer (1986) or Federal Reserve Board (1978).

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much of the present concern with fairness is from the perspective of competitors and not customers. He argues, and I agree, that the focus should be on fairness to customers more than competitors.[8] One of the best ways to ensure fairness is through increased competition and free entry. Interestingly, however, much of the existing financial legislation enacted to promote fairness to competitors does so by imposing differential costs and handicapping certain institutions relative to others. Such regulation promotes inequity and unfairness to achieve redistributions of resources and wealth and allocations of credit different from what an unfettered market would offer.[9]

With respect to the safety and soundness considerations that might arise from commingling banking and commerce, the third and fourth sources of social costs discussed, Huertas breaks down the issues into two broad categories: those pertaining to the implications for the payments system and those related to the protection of customer deposits. In the payments system area, he notes that the bulk of the dollar volume of payments is large and flows through CHIPS (the Clearing House Interbank Payments System) and FedWire.

FedWire is essentially a riskless system from the customers' perspective because once a transaction enters the system, the Federal Reserve guarantees that payment will be received, even if the initiator of the transaction defaults. There are some very interesting questions here that are worthy of further consideration. These concern the appropriateness of the Fed assuming the credit risk in such cases without charging for that risk. Should the federal government even operate a payments system at all?

In the case of CHIPS, Huertas argues that because of the provisional way that transactions are settled, funds received may be reversed if the sender defaults. This policy makes the system vulnerable to systemic risk. Huertas suggests that adoption of "settlement finality"

[8]We already have general statutes in the form of the Robinson-Patman Act that prevent predatory and unfair competitive practices.

[9]In contrast, antidiscrimination laws and regulations attempt to ensure that all customers have access to financial services based on their economic capabilities and are not denied access on the basis of race, creed, etc. One should be careful to distinguish between these types of consumer regulations and those designed to promote credit allocation. Regulation Q ceilings, for example, were neither fair to consumers nor fair to competitors. See Kane (1981). During the Cato Institute's February 1987 conference, it was pointed out repeatedly that most financial regulation has been anticompetitive and designed to reallocate market shares rather than to promote competition. Attempts to promote competition appear to be almost an afterthought in the bank merger and bank holding company acts, which require that proposed mergers and acquisitions pass muster under the antitrust laws of the country. But these requirements are an attempt to correct the anticompetitive consequences of restrictive branching laws and home office protection provisions in state law.

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would deal with that problem, but he does not discuss how likely this is to come about or whether finality of settlement should be required for CHIPS to continue operation. Huertas asserts, but does not discuss, that activities engaged in by system participants do not affect the risks facing these two major payments systems. Here, his analysis is incomplete and needs further development to be convincing.

In the case of protecting customer deposits, Huertas argues that federal deposit insurance has accomplished this end because any risks arising from the commingling of banking and commerce would be borne by the federal deposit insurance agencies. He suggests, consistent with both Benston (1987) and Kaufman (1988), that the principal risks arising from expanding the activities permitted to banking organizations result from failure of the insurance agencies to close institutions when their economic net worth goes to zero, and this closure risk exists independent of the activities banks are permitted to pursue. I agree with this argument completely.[10] The key to protecting the insurance agencies from losses due to activity risks are accurate monitoring and prompt closure policies.[11] In fact, with accurate monitoring and prompt closure policies, there is no need to be concerned about the mix of banking and nonbanking activities engaged in by insured entities from a risk perspective.

In the third major section of his paper, having established that banking and commerce have never truly been separated and that the risk associated with these activities should not be of major concern, Huertas addresses the question of how banking and commerce should be mixed. This section is divided into two parts. The first focuses on the activities that should be permitted to banks, and the second deals with the restrictions that should be placed on the activities of the corporate owners of banks (bank holding companies).

If one accepts, as I do, that prompt closure policies can protect the deposit insurance fund, then the principal reason for limiting banking activities rests on the ease of monitoring the activity. The innovation in the first part of this section lies in Huertas' pointing out that effective monitoring depends not only on the capabilities of the regulators (the lack of which might be used as an excuse for limiting activities) but also on the incentives that other agents, such as debt holders and uninsured depositors, have to monitor the bank.[12] He

[10]See Benston et al. (1986, pp. 103–06).

[11]Adoption of current value accounting is a key element in accurate monitoring by either the regulators or the market.

[12]Kaufman (1988) points out that in periods before federal deposit insurance, banks were required by market forces to maintain substantially higher levels of capital than at present.

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suggests that these incentives would be enhanced by requiring all banks to maintain a minimum proportion of their liabilities in subordinated debt that would be converted into equity when net worth reached zero. Huertas fails, however, to present a more complete discussion of this interesting recommendation.[13]

The next part of this section investigates restrictions on the activities of corporate owners of banks that choose to conduct activities outside of commercial bank subsidiaries. The goal of these restrictions presumably is to limit risk shifting between an insured bank and a nonbank parent or affiliate. Again, the main issues pertain to the ease of monitoring transactions and risk shifting. Regulation is justified if it facilitates monitoring and, I would add, settlement of claims in the event of default. Huertas does not address either how the regulations are justifiable or the more important issue of what closure policies should be used for banks in a holding company system.[14] Should, for example, the agencies close a bank holding company or require a recapitalization when its net worth falls to zero, even if its subsidiary banks are solvent? More generally, whose capital and what uninsured claims support the bank and protect the insurance fund? Only the bank's, or all the resources of the holding company? Can one really separate subsidiary banks from risk taking in the rest of the organization, and would properly designed closure policies stimulate market discipline and enhance monitoring? These are only a few of the questions that arise from this interesting paper.

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[13]This role of uninsured creditors in monitoring and the possibility of requiring the issuance of subordinated debt has been suggested recently in Benston et al. (1986).

[14]The FDIC has already had to face some of these issues in its restructuring of Continental and First Oklahoma. Here the FDIC did make claims on the resources of the parent company and affiliates in resolving the problems.

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Agency Costs and Unregulated Banks: Could Depositors Protect Themselves?

Catherine England

Advocates of federal regulation often argue that individual depositors lack the information necessary to choose a stable institution or to monitor its continued performance. Bankers are presumed to have neither the incentives nor the means to communicate accurate information about the market value and long-term stability of their asset portfolios, and depositors are believed to have no other sources of accurate data. Without government oversight, it is argued, consumers would fall victim to unscrupulous or inefficient bankers who would take depositors' funds and use them to make unsound or illegal investments. The so-called contagion effect, in which the failure of one or more unsound banks can undermine confidence in healthy institutions, is an outgrowth of this presumption that the banking industry is marked by insufficient and asymmetric information.

Federal regulation and supervision of banks is supported, therefore, both as a means of protecting "innocent" bank customers and as a means of protecting "innocent" banks from the negative effects often associated with the failure of other banks. These arguments are widely accepted as describing market failures that prevent the development of a stable unregulated banking system. But there is reason to question their validity.

Most markets can be described as suffering from incomplete and/or asymmetric information. Yet in many cases some individuals turn over to others control of specified assets—either financial or physical—for a period of time, just as bank depositors hand over their funds to bank managers. The literature about agency costs focuses on the arrangements principals (those who entrust the management

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The author is Director of Regulatory Studies at the Cato Institute. She would like to thank Thomas Huertas, Charles Smithson, and Charles Maurice for helpful comments on earlier drafts.

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of some resource to another) make with their agents (those who are entrusted). Contractual terms outline what is expected of the agents and the penalties for nonperformance, and provisions are often made for monitoring the agents' performance. Further, agents have reason to make an effort to signal potential principals about the quality of their effort. The problems and solutions identified by the agency cost literature are directly applicable to the problems expected to arise in an unregulated banking environment.

In the next section of this paper, applying insights available from agency cost literature, we will try to predict how bank managers and customers would behave if there were no federal regulation or federal deposit insurance.[1] To provide support for the theory developed, we will then discuss the performance of banks in Scotland and the United States during their so-called free banking periods when banks were not subject to today's extensive regulatory network. A case can be made that unregulated banking would prove more stable than many observers believe, that information and monitoring systems would develop to guide depositors in the selection of a bank, and that consumers would find ways to protect their funds.

Agency Costs and Unregulated Banking

The agency costs literature argues that both agents and principals are aware of the potential conflicts of interest and abuses that can arise in an agency relationship. But neither group is expected to passively accept the limitations imposed by the potential problems and inefficiencies. The recognition of agency costs creates incentives for both groups to take steps to minimize and control the problem.

To protect their interests, principals have reason to develop and incorporate contractual terms designed to channel the behavior of agents in desirable directions and/or to limit their ability to engage in unacceptable activities. In addition, principals setting a value on agents' services will consider the costs associated with the principal/agent relationship and reduce accordingly the compensation that would be paid to agents in a world of perfect information. Faced with the possibility of reduced compensation, agents will not only agree to contractual terms that reassure principals, but will also develop mechanisms that tend to make principals more confident.

It is not important whether agency cost control mechanisms are initiated by agents or principals. Many common contractual arrange-

[1]We will assume throughout this paper that there is no federal deposit insurance in an unregulated setting.

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ments can be explained in terms of controlling agency costs. Markets do develop means for protecting the interests of principals.

In their initial work on agency costs, Jensen and Meckling (1976) discussed the position of bondholders in relation to owner-managers as one example of an agency relationship. This is particularly applicable to the issue of unregulated banking as the depositors of a bank can be viewed as being in a position similar to that of bondholders. Deposits are liabilities of the bank and depositors are creditors of the firm.[2] Viewing a depositor as a type of creditor raises agency cost questions as depositors (the principals) give control of their funds to bank managers (the agents) in return for specified services (for example, a convenient means of paying bills) and/or a positive return on the money balances deposited (that is, interest).

Bank managers may not share all the concerns of depositors or hold them with the same intensity, however; the two groups may operate under different sets of incentives. Consequently, depositors must be concerned that bank managers may (in the view of depositors) misuse the funds entrusted to them. This raises certain questions: In an unregulated, uninsured setting, can depositors be reasonably assured that deposited funds will be available when they seek to withdraw them? What mechanisms might banking customers develop to protect their interests and encourage desirable behavior on the part of depository institution managers? What reassurances would bank managers and stockholders develop to attract and hold depositors? In other words, how might agency costs be controlled in an unregulated banking relationship?

Incentives

While it is theoretically possible that, without regulation, the fundamental form of banking organizations could change, following Fama and Jensen (1983) we assume here that the corporate form of banking

[2]Under current banking practices, influenced no doubt by the overarching bank regulatory structure, the many bank customers who hold demand deposits and passbook savings accounts are able to require repayment of their funds on demand rather than having a contractually specified date for the return of their money. It is often argued, therefore, that bank managers face greater day-to-day uncertainty about the continued availability of a large part of their operating funds than do managers of nonfinancial firms. But the proportion of bank deposits payable on demand, especially at larger banks, is declining. The bulk of bank funds is now made up of short-dated time deposits, analogous to the commercial paper that funds the operation of relatively unregulated finance companies. Furthermore, as discussed below, the possibility exists that unregulated banks and their customers would use contractual changes to further limit the extent to which deposits payable on demand make up the institution's liabilities.

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would continue. Therefore we must consider the incentives and effective power of the bank's stockholders, managers, and depositors.

The stockholders. As currently regulated, banks are among the more highly leveraged firms in the country, obtaining 94 to 95 percent of their operating funds from deposits, that is, as debt capital. Whether such low equity capital ratios could or would be maintained if there were no government supervision will be discussed below. Certainly stockholders have reason, other things being equal, to economize on equity capital.

As Jensen and Meckling (1976) have pointed out, however, when the bulk of a firm's operating capital is obtained as debt, the owners have an incentive to make investments that promise high payoffs, even if the probability of collecting final payment is relatively low. Bondholders and other creditors of the firm receive a fixed return on their investment and no share of any extraordinary profits, so the owner-manager of a highly leveraged firm can retain most of the gains from successful investments while sharing with the firm's creditors a large part of the costs of its failure. This tendency for more highly leveraged firms to take on more risk is especially true with corporations. Stockholders, by the nature of their limited investment, are better able to diversify their holdings across firms and sectors of the economy than are single entrepreneurs. Thus, while stockholders certainly do not want their bank to fail, they have an incentive to encourage risk-taking on the part of bank managers as they seek to maximize their total expected return. The more highly leveraged the bank, the more risk it can afford to pursue.

Depositors. We assume here that the bank's depositors are the most risk averse of the three groups considered (though of course, many individual depositors may be less risk averse than some bank stockholders). The depositors' primary interest, we postulate, is the eventual repayment of deposited funds (to themselves or to a designated recipient) and any interest that has been promised. Assuming depositors follow the norm for creditors in other markets, a bank's deposit customers would stand to gain relatively little from the institution's rapid growth or the pursuit of relatively risky profits with high potential payoffs. On the other hand, the depositors could suffer significant losses if the bank failed.

Bank managers. The fundamental goal of professional managers, we are assuming, is to maximize the expected value of their future income streams. In that pursuit, they will try to enhance the prestige associated with the positions they currently hold and to avoid failures

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that would generate charges of fraud or mismanagement. Because the long-term income and prestige of a bank's managers are more closely tied to the success or failure of a particular institution than is the financial security of the average stockholder, bank managers are likely to be more risk averse than corporate owners. (See, for example, Leonard and Zeckhauser 1985.) The precise degree of a bank manager's risk aversion will depend on the operation of the market for bank management talent and the degree to which individual managers are viewed as responsible for institutions' successes and failures.

The assumption that bank managers seek to maximize the expected value of a future stream of income implies that their risk-taking propensities can be affected by the policies of those who compensate them for their services. The exact position of bank managers on the continuum of risk-taking behavior that places stockholders at one end and depositors at the other, will depend, therefore, on the reward and punishment structures devised by stockholders and depositors. As the ultimate success or failure of the depository depends largely on the decisions made by bank managers, the question is, who will exercise the greater influence over their behavior: stockholders or depositors? The answer will depend on which group is in the better position to reward (or punish) behavior of which it approves (or disapproves). This suggests an inherent conflict between a bank's stockholders, who would encourage more risk, and its depositors, who would urge more caution.

Stockholders vs. Depositors. Stockholders, through the board of directors, will attempt to influence the behavior of bank managers principally through a structure of direct rewards—promotions, salary, bonuses, and other perquisites—established for the institution. Control also can be exercised indirectly through the stock market and the market for corporate control.

Thus, shareholders have at hand both internal and external mechanisms for controlling agency costs and managerial behavior. The methods of stockholders are potentially powerful and fairly well developed as a result of extended experience through time and across industries. But depositors responding to an unregulated banking system could, contrary to common perception, exercise even more influence.

The existing system of government regulation and insurance has stifled the development of market mechanisms through which depositors might control bankers' behavior. But bank depositors, particularly those controlling relatively large accounts, are in a position to exercise relatively direct control over the bank's managers. When a

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depositor removes his funds from a bank, he directly reduces the resources available to the depository, even though no immediate sale of assets may be required. Given existing deposit contracts, if enough depositors became dissatisfied and responded by closing their accounts, the ensuing run could force a bank into failure in a relatively short time (if there were no government intervention), something disgruntled stockholders would find it much more difficult to do. Because of the potentially serious (even institutionally fatal) consequences of depositor displeasure, a bank's managers and stockholders could be expected not only to agree to, but also to attempt to develop, contractual terms that protect and reassure depositors.

An increased emphasis on safety. We assume that while the customers of unregulated banks might demand a wider range of financial services or nationwide access to their funds, their primary concern would be safety. Before considering how such a concern might manifest itself, it is worth noting that existing federal guarantees mute competition in this area.

Except in the wake of a large local bank failure or a widely publicized problem, bankers rarely discuss with depositors or potential depositors the relative stability of their banks. To indicate it is safe, a bank merely reminds customers that it is a member of the Federal Deposit Insurance Corporation and/or that deposits are "federally insured to $100,000." Indeed, banks have been exempted from many disclosure requirements imposed on other institutions,[3] but the main reason there is little information about the relative stability of individual institutions is that because of federal deposit insurance the public demand for such information is sharply reduced.

Widespread apathy about the details of the banking business or about the investment decisions of any particular bank is rational given the existing deposit insurance system. For depositors placing accounts of less than $100,000, there is no practical reason to care about the future prospects of an institution, and even individuals depositing more than $100,000 often find their funds protected as federal officials handling troubled institutions have demonstrated a preference for purchase and assumption agreements (that is, mergers) that fully protect all depositors.

[3]There have been recent moves to force more disclosure from banks—on the subject of loans to Third World countries, for example. There has also been a good deal of discussion about increasing the disclosure of relevant information both from banks and federal regulators as a means of enhancing the market's discipline of banks taking excessive risks.

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If there were no government guarantees and oversight, however, individual depositors would find it more worthwhile to gather information about the business practices of individual depositories. There would also be more reason for depositors to develop ways of monitoring and controlling the actions of particular banks. Huertas and Strauber (1986, p. 9) have argued that bank regulation and supervision limit the amount and type of discipline the market would otherwise impose because regulators are believed to fulfill the function that creditors or their trustees fulfill when loans are made to a nondepository firm.

Control Mechanisms

Even with improved public knowledge about depository institutions, not every consumer would need to study banks' balance sheets and loan portfolios before deciding where to place his funds. Many small stockholders rarely, if ever, read an annual report or follow the daily developments that affect companies in which they have invested. Neither do bondholders rely on their individual resources to discipline the firms to whom they lend money. Covenants designed to protect the interests of bondholders are developed by the managing underwriters, and the covenants are monitored and enforced by the trustees for the issue and by the bond rating services (Huertas and Strauber 1986, p. 9).

The first, and simplest, step individuals could take to protect their financial interests in the face of unregulated banking would be to better diversify their personal financial portfolios. That is, even without detailed information about the stability of any specific bank, depositors could reduce their risk by placing their savings account(s) in a bank (or banks) other than the one that held their checking account. In addition, however, it is logical to expect mechanisms to develop through which depositors as a group could monitor and control unregulated banks. Possible control mechanisms can be considered in three broad, though not entirely exclusive, categories: 1) sources that provide information about particular institutions, 2) parties other than the bank's stockholders or depositors who can monitor the behavior of bankers, and 3) contractual terms that expand or more fully define the legal obligations of bank stockholders and managers to depositors in the event the bank fails.

Sources of information. Independent sources of information about the relative stability of individual depositories could include independent bank rating services, money brokerage services, and/or

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financial auditors.[4] Bank rating and money brokerage services could provide comparative analyses about banks' relative returns, services, and risk to clients. Some might act as agents themselves, placing the funds of clients in institutions that exhibit the desired risk/return trade-offs. In addition, the broadcast and print media as well as public libraries would be likely to subscribe to summary versions of such analyses in order to provide their customers with basic financial information. In fact, bank rating services might provide some information through news releases to establish name recognition and attract potential clients.

To substantiate their advantage, relatively stable banks would readily provide data to these third-party monitors, and banks that had performed particularly well in independent rankings would use that information in their promotional materials to confirm their claims of superiority.[5] This willingness on the part of healthy banks to distribute information would place competitive pressures on those institutions that otherwise would be inclined to be less forthcoming.

Independent auditors could also play an important role in analyzing financial data about the health of depository institutions. Currently accepted accounting procedures allow auditors to base their reports on the book values of assets, which permit them to ignore or gloss over the true condition of many institutions. Indeed, the primary purpose of auditors' reports is currently not so much to evaluate the overall health of an institution as it is to ensure that the firm is complying with accepted procedures in preparing financial reports and income statements. If there were no government guarantees, however, depositors would have greater incentive to encourage independent auditors to issue more candid reports and to go beyond the job they do today. This could be accomplished through explicit or implicit contracts between auditors and depositors that held the auditors legally responsible for losses suffered by depositors because of inaccurate, incomplete, or misleading reports.[6] Or depositors could prove willing to deposit significant sums only in those depositories

[4]Bank rating services already exist, both independently and as parts of larger brokerage firms, to advise investors regarding bank stocks, nondeposit bank debt issues, and bank CDs. Such services, and others like them, could be expanded and developed as more depositors sought information about the relative stability of various institutions.

[5]A. M. Best's rating of insurance companies is often used as a marketing tool by those firms that perform well.

[6]Independent audits can be used to provide the necessary information to control the behavior of bankers. Swiss banking supervisors do not employ bank examiners of their own. They rely entirely on the reports produced by the banks' independent auditors.

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that had received a favorable audit from an accounting firm with a reputation for accurate reports.

Another source of readily available information would be the prices charged for the funds made available to banks, that is, the interest rates banks paid to attract deposits. Market prices reflect the perceived risk attached to various investments, and without government guarantees, the market for bank debt would undoubtedly become even more sensitive to relative depository risk. As the market's perception of the risk associated with deposits in an institution rose, the interest rate that depository would need to offer to attract and hold funds would also rise.[7]

Outside monitors. In addition to new sources of information, depositors might also employ third party monitors to influence the activities of bank managers. In some cases, the function of providing information and the use of third-party monitors would be closely related; in others, large depositors in particular might include covenants in deposit contracts that required agreed upon third-party monitoring of the bank in question.

Consider the role of money brokers mentioned earlier. Money brokers now place large deposits where they will earn the highest return. Since the FDIC guarantees accrued interest as well as principal, this brokering process represents a no-lose situation for risk-averse individuals who break up larger sums into $100,000 deposits.

Under the no-regulation, no-federal-insurance scenario, money brokers might still place deposits for their customers, but the purpose would be to reduce the risks of depositors through diversification and to take advantage of the brokers' relative expertise in evaluating and monitoring individual depository performance. Thus brokers would probably compete, in part, on their ability to accurately measure risk and anticipate changes in the prospects of depositories in which they placed clients' funds. Successful brokers would not only identify those institutions paying the highest rates, they would also need to consider the risks associated with different depositories.

In an unregulated market, depositors might also demand private deposit insurance, sold either to depository institutions or to individual depositors. For private deposit guarantors to manage their own risk exposure, they would need to develop a means for accurately assessing the risk embodied in individual banks. If private insurance

[7]This is true to some extent today. Interest on certificates of deposit exceeding $100,000 vary with the perceived soundness of the institution offering the CD.

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were provided through the depository, as federal guarantees are now, insurance premiums would vary with the expected future health of the client institution, raising or lowering the costs of operating the bank depending on the managers' investment decisions. Further, the guarantor could develop contractual mechanisms for controlling the risk taken on by bank managers—capital or reserve minimums, for example, or requirements that certain actions be approved by the insurer before being undertaken.[8]

Selling deposit insurance policies directly to bank customers would not eliminate the need for guarantors to monitor the financial health of individual banks. It would, however, provide depositors with another index to the relative health of various institutions. The managers of banks assuming greater than average risk would offer higher interest rates to attract funds, but customers seeking to insure those deposits would also have to pay higher insurance premiums.[9]

The activities of banks not subject to government oversight could also be monitored through self-regulatory organizations formed by bank managers and stockholders who believe that the stability of their institution is at least partly dependent on the stability of other depositories. Industry-sponsored monitors could be local, regional, or nationwide collections of institutions that agreed to make funds available to troubled members under contractually specified conditions. The emergency funds could be deposited in advance in a common pool managed by representatives of the member institutions, or membership agreements might specify the conditions under which healthy institutions would be expected to make a loan to or buy assets from an illiquid fellow member. To minimize the risk associated with such agreements, participating bankers would want to be sure other member institutions maintained certain prudent standards of behavior, so a self-regulatory organization might establish minimum capital and reserve requirements, for example, and/or "prudent" lending standards: It could also develop ways to monitor member performance and to expel members who failed to meet minimum requirements. Self-regulatory mutual support organizations might develop a logo or trademark that member institutions could use to signal depositors about the standards of banking practice

[8]For a more complete discussion of how private deposit insurance might work, see England and Palffy (1983), England (1985), or Ely (1985).

[9]Similarly, insurance premiums now provide individuals with some information about the relative structural soundness of competing car brands, for example, or of the relative hazard associated with different careers.

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adhered to and the extent of external support available in the event of trouble.[10]

Contractual relationships. The contractual relationships between bank stockholders or managers and depositors in an unregulated banking environment could also change. If the objective of depositors is to limit risk-taking, they should attempt to reduce the gains associated with successful risk-taking and/or to increase the costs of failure as measured by bank managers and stockholders. Of course, this generally will not be accomplished through individually negotiated contracts between depositors and their banks. While some very large depositors might exercise such direct power, most changes would arise as bank managers and stockholders offered different combinations of contracts and organizational structures in an attempt to attract more depositors. A successful contractual innovation that better protected the interests of depositors would attract customers (and hence funds) from other banks. These banks, to protect their market positions, would either match the innovative contract or attempt to improve on it. In this way, the market would evolve in a manner that reflects the concerns of depositors.

For example, unregulated banks might find it advantageous to increase their paid-in capital above what is currently enforced by federal regulators. As Modigliani and Miller (1958) established, individuals and firms (including banks) lending to highly leveraged companies compensate for the additional risk by increasing the interest rate charged. In the absence of government regulation and deposit insurance this same principle would apply to banks. Thus, unregulated depositories would find their cost of funds reduced as their equity capital increased, other things being equal. Of course, the optimal mix of debt and equity capital would vary from bank to bank depending on the risk associated with different asset portfolios, the stability and long-term prospects of the markets and industries served by individual banks, and the risk-taking characteristics of the customers of the various institutions.

Another possibility would involve extending the shareholders' liability in a failure beyond their investment in the bank's stock. This

[10]The Best Western motel chain, for example, is actually made up of independently owned and operated firms. To use the name "Best Western," these hotels must meet specified standards for size of rooms, quality of service, cleanliness, etc. Thus, "Best Western" was designed to provide customers with information about the quality of certain independently operated models, and the continuing value of this "name brand capital" depends on how well the private supervisor enforces established standards of operation.

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would give depositors a claim against assets of the shareholders beyond the paid-in capital of the bank. Recent proposals have suggested that shareholders should be required to contribute an additional amount up to the par value of their investment to cover any losses. This "double liability" should increase shareholders' incentives to encourage bank managers to avoid failure.[11]

As an alternative to requiring extended liability for stockholders, depositors in an unregulated environment might choose to patronize only banks that included a portion of subordinated debt in their capital accounts. As fellow creditors, the interests of subordinated debtholders are more closely aligned with depositors than with stockholders or bank managers but, by definition, such debt does not threaten the ability of depositors to recover their funds in the event of a failure. If the debt were structured so that a portion matured at regular intervals, the sale of subordinated debt would provide depositors with regularly updated information about the market's assessment of the health of the bank in question.[12]

Depositors might also be willing to accept innovations that would help protect against occasional illiquidity. For example, a bank caught short on cash, but generally recognized as solvent, might convince a customer seeking access to his funds to delay his request for a specified period while the banker generated additional liquidity. Alternatively, the banker might issue a "promise to pay" that would be accepted as a cash substitute by local merchants or other depositories. In return for the forbearance of the depositor or for acceptance of the promissory note, the banker would provide an interest bonus or forgo some fee. In fact, the contractual terms applied to demand and savings deposits might be changed in a way that would give bank managers the option to limit withdrawals for a specified period of time or to require prenotification before an account was closed.[13]

[11]The oldest and most widely known form of banking in Switzerland is the so-called private bank. These institutions cater to a wealthy international clientele and emphasize investment management, brokerage, underwriting, placement of securities, and related bank functions. The owners of these banks, viewed as among the most stable in the world, accept unlimited liability in the event of failure (Corti, p. 4.6.10).

[12]While it is generally accepted that the use of subordinated debt as part of a bank's capital structure would tend to reduce bank risk, Black et al. (1978) observed that in at least one respect the use of subordinated debt would tend to increase the marginal incentives for risk-taking. By allowing banks to substitute subordinated debt for equity capital, stockholders would further increase the leverage of the firm. As noted, stockholders of a highly leveraged firm generally are less risk averse than they would be if their contribution to the firm's working capital were proportionately greater.

[13]Before 1933, savings banks had a clause in their deposit contracts requiring depositors to provide a 60-day notice prior to withdrawing their funds. Generally, this notice was waived, but during panics or cash shortages, the savings banks would invoke the requirement.

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Such a clause is more than a means of protecting the bank's stockholders and managers. It would also protect bank customers, for it would remove the threat that either an unexpectedly large demand for cash or a panic-driven run would impose disproportionate losses on those who did not react quickly. Because the bank's managers and/or directors could delay payments, those depositors who believed the institution to be solvent would have no reason to join and reinforce a panic even if others attempted to close their accounts. And if the bank were truly insolvent, it could be closed and liquidated in a more orderly manner than is possible in the face of a run. There would no longer be any significant advantage to being first in line and hence no reason concern among some bank customers should generate a panic that could become a self-fulfilling prophecy.

Finally, to protect their funds, depositors placing large sums or money brokers acting on behalf of clients might place contractual constraints on the behavior of bank managers. For example, in an unregulated, uninsured banking system, it might be that only those institutions with deposits backed by easily marketable assets would survive, that is, mutual funds-type organizations. (See Fama 1980.) Other constraints might limit the life of loans made by depositories, the ability of bankers to concentrate loan portfolios in a particular region or industry, or the size of loan bankers could make to any one lender.

Much of the foregoing discussion about the sources of information and contractual protections that might develop without government oversight is, of necessity, speculative. It is difficult to predict exactly what form changes designed to control agency costs between depositors and bankers would take. Clearly, however, no one directly involved benefits from a run on a solvent institution. In an unregulated, non-federally-insured banking environment, therefore, bank managers and stockholders would have good reason to accept, even initiate, changes in contractual arrangements that would generate a sense of confidence among depositors. Those institutions able to develop attractive, effective protection mechanisms for depositors and incorporate them into their operations would attract funds from other banks less attuned to the concerns of consumers.

Naturally, it is unlikely that an unregulated banking industry would develop the uniformity of contractual terms apparent in today's highly controlled environment. That is, some depository institutions could be expected to cater to the most risk-averse depositors. These banks might offer deposits backed only by highly liquid assets, for example. Other, less risk averse individuals would be attracted by institutions offering a wider range of services and higher rates of return. In short,

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if there were no federally enforced standards of uniformity, the banking industry would be expected to become more heterogeneous than it now is. Each institution would attract subsets of the broad spectrum of consumers whose needs and preferences best matched its mix of contractual terms and risk/return trade-offs.

Failures

In the absence of government regulation, bail outs, and deposit insurance, the potential for more frequent bank failures exists, so two questions must be addressed: (1) What response, if any, would the failure of one institution elicit from stockholders and managers of other banks? and (2) What response, if any, would the failure of one institution elicit from depositors of other banks?

Other bankers' reaction to failure. How the managers and stockholders of healthy institutions might respond to the actual or imminent failure of another bank will depend on many variables—the size of the failed bank, the extent of losses to depositors, its membership or nonmembership in a mutual support organization, and the publicly accepted reasons for the bank's failure, to name but a few.

Healthy depositories would attempt to distance their operations from those of the failed bank. Bank managers would make an effort to explain how their operations were different, how their management was superior, or how their portfolios were safer than those of the defunct depository. The point would be to convince depositors that the failure of one institution implied no more than that bad decisions were made at that bank. The remaining, healthy institutions could even gain by the demise of a competitor, and they would want to make sure their customers understood that.

If bankers believe that all depositors are more likely to panic when any one institution fails, then sound banks might take steps to facilitate the quiet, orderly liquidation of a troubled institution. Solvent banks could work together to evaluate and purchase the assets of the troubled bank, including its physical assets and its loan portfolio. Healthy institutions individually might take steps to minimize the costs of failure to the affected depositors. To attract as new customers the depositors of an institution forced to close, for example, remaining banks might offer loans backed by individuals' claims on the insolvent depository.

Mutual support or self-regulatory organizations would have even more reason to facilitate the liquidation of and protect the depositors of an insolvent member institution as the confidence instilled by their operation under an organizational umbrella would depend in

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part on how the organization handled such a crisis. Therefore, such organizations might develop methods of distributing assets to fellow members so that funds could be raised promptly and depositors paid.

Other depositors' response to failure. Panic-generated runs are presumed to occur because depositors are unable to differentiate healthy from unhealthy institutions. When some weakness causes the failure of one bank, it is believed that consumers will ascribe similar frailties to other institutions and that they will question the stability of all remaining banks. If enough depositors are sufficiently concerned to withdraw their funds from the banking *system* while awaiting additional information, a general collapse can ensue.[14] Therefore, the important question is whether depositors in an unregulated setting would have confidence in their ability to differentiate healthy banks from unsound ones. If depositors felt they could make such distinctions, they would be unlikely to remove funds from one bank solely because another had failed, and funds that were removed from questionable depositories would be quickly redeposited in other institutions.

Without federal regulation and insurance, the returns to depositors investing in information about the banking industry generally and about specific depository institutions would increase. This increased interest among depositors in the relative strength of banks would lead to an increase in the availability of both comparative and absolute information. In an unregulated setting, then, there would be a greater demand for and a greater supply of information about the strengths and weaknesses of various institutions than now exists.

Consequently, depositors as a group would be better informed about the business of banking as well as about the health of any particular depository than they are under the existing system. While increased information about banks would not eliminate the possibility of a run based on unfounded fears, additional knowledge should work to reduce the probability of such a scenario.

Reinforcing the argument that an unregulated banking system could be a stable one is the presumption that banks would become more differentiated, more heterogeneous in an unregulated environment. In an effort to identify the bank(s) that best met their individual needs, bank customers would compare (or hire someone to compare

[14]Runs on individual banks, even solvent banks, cannot threaten the system if the money is redeposited in other depositories. Indeed, such shifting of deposits will provide the banks receiving a net inflow of funds with the liquidity to extend loans to or buy assets from solvent, but illiquid competitors. It is a run on the *system*, when withdrawn funds are hoarded, that creates a cause for concern.

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for them) the range of services, the returns offered, and the safety embodied in individual institutions. Through this shopping process, consumers would begin to differentiate among depositories rather than viewing them as similar in their essential characteristics. Given such differentiation, weaknesses uncovered at one depository need not lead depositors to assume that all or any other banks are likely to incorporate similar flaws. Thus, the more heterogeneous an unregulated banking system became and the more this heterogeneity was communicated to depositors, the more stable the industry could be expected to be.

Of course, a serious weakness revealed through one failure could be reflected in other institutions, and confidence in similarly situated depositories could, then, be undermined, generating depositor runs on all such banks. But such runs should be self-contained as the market would reject only those institutions exhibiting attributes determined to be undesirable.[15] Further, those consumers removing funds from the suspect depositories should prove willing to redeposit them in another bank exhibiting different characteristics. The banking system would not be threatened, only certain banks.

The Historical Evidence

In an attempt to determine whether there is any validity to the foregoing predictions about depositors' ability to protect themselves, we will now examine the "free banking" periods in Scotland and the United States. The Scottish free banking era lasted roughly from 1716 until 1845. It was the less regulated of the two systems as there was neither a Scottish central bank nor government oversight of banking activities—including entry and exit. The U.S. "free banking" experiments occurred between 1836 and 1863. During this period, the federal government played no role in banking, so regulatory decisions were made at the state level. Many states instituted a system of relatively free entry. Anyone meeting the minimum capital and collateral requirements could obtain a bank charter and issue

[15]It can be argued that just such a situation touched off runs on state-insured savings and loans in Ohio and Maryland during the spring of 1985. As it became apparent that the state insurance funds had failed to adequately police the behavior of managers at Home State in Ohio and Old Court in Maryland, depositors feared that similar ill-advised and/or illegal practices were taking place at other state-insured institutions. Once there was reason to doubt the efficacy of the formerly trusted supervision structure, depositors were no longer willing to leave their funds in the thrifts in question. Support for this thesis arises from the facts that, first, uninsured savings and loans in Ohio were not threatened by the runs and, second, at least during the Ohio crisis, other state systems remained largely unscathed.

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bank notes. It would be a mistake to view these banks as unregulated, however, as the various states imposed branching restrictions and reserve requirements, for example. Still, there were fewer restrictions than exist today and, of course, there was no federal deposit insurance.[16]

Deposit banking played a much less important role during the 18th and 19th centuries than it does today.[17] Instead, each bank issued its own currency and the concern was whether a bank's notes would be accepted by others and/or whether they could be redeemed for specie (gold or silver coin). Further, the claim of noteholders against the assets of a failed bank superseded depositors' claims. As Hildreth (p. 155), writing in the early 19th century, explained, "[I]t is a voluntary thing for [depositors of a bank] to become such, and they may properly be left to select a depository for themselves, and stand any loss which that voluntary selection may involve." Noteholders received somewhat more sympathy because it was more difficult to control the selection of notes one held at any particular moment in time.

Recent historical evidence indicates that these earlier banking systems were not as chaotic and unstable as they are often portrayed.[18] Much of the explanation may lie in the markets' responses to the agency costs discussed above.

Sources of Information and Third-Party Monitors

The restrictions on branch banking in the United States led the 19th-century money brokers to locate in larger towns and commercial centers so they could buy and sell notes from across town or across the country. "Foreign" notes could be exchanged for either local currencies or for specie. Not all bank notes circulated in every location at par, of course, and the discount attached to a particular issue, its "specie price," was determined by the local money brokers. The market value of a particular bank's notes generally depended on the bank's location (particularly its distance from the broker setting the discount) and available information about the condition of the issuing bank (Rockoff 1974, p. 143).[19]

[16]For a description of the Scottish free banking system and its performance, see White (1984). For a description of the various U.S. "free banking" systems, see, for example, Rockoff (1975).

[17]This is evident in debates over whether demand deposits constituted part of the money supply (see Mints, pp. 127–28) as well as in the general lack of concern about the losses suffered by depositors as opposed to noteholders in the event of a bank failure.

[18]See, for example, White (1984) and Kaufman (1988).

[19]Jay Cooke began his career as a bank note expert for E. W. Clark and Company of

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Information about the discount rates attached by the brokers to specific note issues was published in "bank note reporters." These newspaper-like periodicals, usually published weekly, listed each bank by state and county along with the discount on its notes in the city for which the reporter was published. The reporter also described and identified all counterfeit notes and notes from banks that had failed. This was a cumulative list, reporting failures that had occurred and counterfeits that had been removed from circulation years before. Merchants and bankers not only could readily determine the market value of any unfamiliar notes presented in payment for goods or in exchange for other notes or specie, they also were protected from attempts by others to reintroduce notes earlier deemed valueless. (See Hammond, p. 703; Rockoff 1974, p. 143.)[20]

In addition to providing a service to travelers and local bankers by exchanging notes issued by out-of-town banks, the brokers also provided an important disciplinary function by returning notes for redemption—even when they circulated outside a bank's home market. When Minnesota suspended construction on its railroad in 1859, the value of its railroad bonds fell sharply. State officials proved reluctant to reduce the legal price of the depreciating state debt and force banks to contract their note issues or contribute more capital to support their operations; the money brokers provided the discipline.[21] Within six months, brokers in St. Paul began a systematic attack on those banks holding large sums of railroad bonds as backing for their notes. The brokers collected and returned the notes for redemption, thus forcing the banks to improve the quality of their collateral by threatening to drive them out of business (Rockoff 1975, p. 110). In 1858, Chicago brokers imposed discipline on Wisconsin

Philadelphia, for example. As an expert on bank notes, Cooke could "recognize at sight notes from all over the country, could distinguish the spurious and the counterfeit, and knew the varying value of those that had value" (Hammond, p. 702). In describing his company's brokerage activities during 1839 and 1840, Cooke wrote, "Our office is continually crowded with customers, and we do a tremendous business. We buy and sell at from ⅛ to ¼ for commission and thus in doing $50,000 per day you will see it pays well" (Hammond, p. 703).

[20]Many scholars have viewed the heterogeneity of the 18th- and 19th-century currencies as increasing the costs of doing business and potentially slowing overall economic growth. In fact, verifying the value of an unknown bank note in 19th-century America was probably similar to the process associated with verifying the validity of a customer's Mastercard or Visa today.

[21]When the Minnesota banking authority sought guidance from the state's attorney general in dealing with the depreciating state railroad bonds, the attorney general replied that while the banking authorities had no legal obligation to accept the railroad bonds for more than their market value, in his opinion, they had a *moral* obligation to do so. (See Rockoff 1975, p. 108.)

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wildcat banks when they refused to accept the notes of 27 specific Wisconsin banks that had "located at inaccessible points, having no capital, doing no banking business, providing no means whatever for the redemption of their issues" (Hammond, p. 618).[22]

In Scotland, where wider branching and a nationwide note exchange system made money brokers less valuable, the banks themselves sometimes provided information about their financial health. In 1704 and again in 1728 when unexpected illiquidity forced the Bank of Scotland to temporarily suspend specie payments, the bank was able to satisfy its customers and maintain public confidence in its notes by publishing its accounts to demonstrate its solvency. In 1836, the Glasgow Union Bank began to regularly publicize its asset and liability status as a means of attracting customers. It thus became the first British bank to issue a detailed annual balance sheet, but others soon followed suit.

The note exchanges and clearinghouses. In 1751, the Bank of Scotland and the Royal Bank agreed to accept and regularly exchange one another's notes. The Aberdeen and the Perth United banks initiated a similar system of mutual acceptance and exchange in 1761 to encourage merchants doing business between the two cities to hold the notes of the two banks. Perth United soon entered into a similar arrangement with Dundee Banking Company. By 1771, a nationwide note exchange system had developed in Scotland (White, pp. 30–31).

This note exchange system benefited both the bankers and the public. The acceptance by banks of one another's notes at par reduced the public's costs of accepting and using bank notes, which enhanced the participating banks' name brand capital and hence their ability to expand their note issues. But the Scottish note exchange system also provided a form of industry-imposed discipline.

The most dramatic example of this discipline was the failure of Douglas, Heron and Company, better known as the Ayr Bank, established in 1769. Through its note issues, the Ayr Bank extended a great quantity of bad credit. The note exchange system, to which the Ayr Bank belonged, rapidly returned the bank's notes to it and,

[22]The system did not always work, however, especially when the state interfered with the brokers' efforts to impose discipline. In Maryland in 1841, banks were explicitly released by the state from the legal obligation to redeem notes presented by brokers. The legislature took the view that "evil brokers" were seeking to carry off the community's specie to other parts of the country (Hammond, p. 691). And a Boston money broker was brought before a grand jury in Vermont for attempting to redeem in specie the notes of a Vermont bank. The Vermont attorney general maintained the broker was guilty of an indictable offense (Dewey, p. 74).

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lacking the specie to settle its accounts with fellow members, the bank was forced to turn to the London money markets to raise funds. The Ayr Bank floated an increasingly large sum of "bills of accommodation" with London banks, but when the loans it had made in Scotland began to sour, the Ayr Bank found it could not roll over, let alone retire, its debt obligations in London. In 1772, the Ayr Bank was forced into liquidation when brokers and bankers in London refused to buy its paper (White, pp. 30–32). Thus, while the Scottish free banking system could not prevent the establishment of a bank with poor management, it could cause its failure within a fairly short period of time.

Similarly, the clearinghouses that developed in the United States during the 19th century were in a position to monitor the performance of member banks.[23] Redlich (1968, vol. 2, pp. 46–47) observed that through the regular exchange of notes and settlement of balances, the stronger banks could compel weaker institutions to adhere to accepted standards of prudent banking behavior. Hepburn (1903, pp. 157–58), no great fan of free banking, nevertheless reported of the antebellum clearinghouse associations that:

> The clearing-house fixed a cash reserve and bound each member to maintain the same; took the public into its confidence by publishing weekly reports of condition showing the standing of each bank. This action, more than any legislation, more than anything else, aided in building up a sense of moral responsibility to the public on the part of banks throughout the country, in restraining the undue expansion of note issues and the many other reprehensible practices which characterized the banking of that period.

The "sense of moral responsibility" admired by Hepburn was more probably effective market discipline imposed by noteholders armed with information.

Probably the best known example of a clearinghouse acting as a self-regulatory organization was the Suffolk System begun in 1824.[24]

[23]As the role of clearinghouses developed in the United States, one bank in the association would be assigned the administrative role of clearing other member banks' accounts. Each member bank kept part of its specie on deposit with this "central" bank, which in turn issued clearinghouse certificates of an equivalent amount to be used in the settlement of daily balances. (See Timberlake 1984, p. 3.)

[24]The Suffolk Bank of Boston entered the business of clearing country banks' notes as a profit-making venture, unlike the more typical cooperative associations established by member banks. The Suffolk Bank hoped to force the country banks to limit their note issues circulating within Boston and, thus, to create a larger market for its own notes. Further, the Suffolk Bank was interested primarily in collecting and clearing the notes of banks outside of Boston—in the surrounding countryside and in other New England states—as opposed to clearing the intracity notes, though it eventually did

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According to Trivoli (1979, p. 17), "The most striking achievement of the Suffolk System for Boston was the ultimate elimination of the discount on country bank notes. . . . The Suffolk System worked as an effective protection of the public against unsound banks." The Suffolk Bank did not automatically accept any bank as a member of its system. Bankers that followed practices which could be expected to lead to an overexpansion of their notes were not included. The ability to monitor and control country banks' account "overdrafts" gave the Suffolk Bank considerable power over the loan policies of these banks. Through the power to insist on immediate payment in specie of notes sent back to the issuing bank and through the threat to remove a bank from its list of New England banks in "good standing," the Suffolk Bank effectively imposed its standards on the banks throughout New England. (See Trivoli, p. 19.)

Before it came to an end in 1858, the system compiled an impressive record. By 1850, the Suffolk Bank either directly or through other Boston banks cleared notes for about 500 New England banks, or basically all those considered sound (Hammond 1957, pp. 551–54). The banking standards imposed by the Suffolk System improved the performance and stability of the banks that were members. In the panic of 1837, for example, not one Connecticut bank failed or found it necessary to suspend specie payments. Similarly, in 1857, when the state of Maine declared a suspension of specie payments, all but three banks, almost all members of the Suffolk System, continued to redeem their notes in specie (Rothbard, p. 218). Even Bray Hammond (p. 556), a critic of free banking generally, admitted the Suffolk System worked:

> The operation of the Suffolk Bank showed *laisser faire* at its best. With no privileges or sanctions whatever from the government, private enterprise developed in the Suffolk an efficient regulation of bank credit that was quite as much in the public interest as government regulation could be.

Though not as geographically widespread as the Suffolk System, other successful clearinghouses were also established. In New York City, for example, sixty banks established the New York Clearing House in October 1853.

After the panic of 1857, 42 New York City banks agreed to maintain specific reserve requirements (Hammond, p. 713). This voluntary reserve requirement soon became effectively binding on all mem-

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that too. Despite these differences with the more typical clearinghouses, the Suffolk System provides a good example of private regulation of the banking system. For a more complete description of the operation of the Suffolk System, see Trivoli (1979, pp. 13–15).

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bers of the New York Clearing House. In 1858, James Gibbons, summarizing the overall impact of the New York Clearing House, reported the clearinghouse had "put an end to speculative banking in New York. It has exerted a powerful influence to arrest speculative commerce" (Hammond, p. 706).

Timberlake (1984, p. 2) viewed the development of the 19th century U.S. clearinghouse associations as a mutual defense system against illiquidity. The panic of 1857 provides an example of the ability of the clearinghouse association to protect individual banks and their customers. Reserves in the New York banks began to decline in August 1857, and when a prominent bank failed a full blown panic seemed likely. At first the New York banks wanted to curtail loans, the usual means of responding to a specie drain. But the clearinghouse banks agreed to "increase their loans so that the clearing-house balances of all of them would be increased proportionately and would cancel each other without reducing the slender stock of specie" (Timberlake, p. 3).

Meanwhile, the country banks had drawn down the balance of specie held with the New York banks and against which their notes were cleared. A policy committee of the New York Clearing House Association authorized the issuance of "clearing house loan certificates." These loan certificates were backed by the unredeemed notes of country banks which were held by the central bank of the association. The loan certificates were issued to the creditor city banks that had received country bank notes in the course of doing business. The loan certificates were used by members of the clearinghouse in lieu of specie in settling interbank balances.

The loan certificates differed from the usual clearinghouse certificates in that the latter were issued strictly in lieu of specie or other legal reserves while the loan certificates were extensions of credit by the clearinghouse policy committee to member banks during the emergency. The country banks that could not redeem their notes immediately agreed to pay 6 percent interest on the loans thus granted by their city bank correspondents. The city banks then used the country bank notes, still backed by securities deposited with the New York state authorities, as collateral for the new clearinghouse loan certificates. The city banks were, thus, able to furnish more of their own notes to pay depositors and extend loans. (See Timberlake, pp. 3–4.) The clearinghouse had found a way to conserve the specie held by its members and to avoid the expected panic.

Contractual Terms

Of course, the definition of free banking in the United States represented a change in the contractual terms under which notes were

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issued. Paid-in capital took the form of specified securities held by state banking authorities for safekeeping. In addition, stockholders of free banks in Massachusetts faced unlimited liability in the event of failure (Rockoff 1975, p. 125) as did bank shareholders in Scotland (White, pp. 32–41).[25]

The Scottish banks used unlimited stockholder liability as a means of competing to provide "safety" to their customers and noteholders. Limited liability became an option in Scotland 20 years before any banks adopted it. Apparently, bank owners and directors feared a loss of confidence would result if they included "Limited" after their names. To further bolster confidence, 18th-century Scottish bankers often posted with the town clerk a personal bond guaranteeing payment of the bank's notes in the event of failure (White, p. 41).

In 1730 the Bank of Scotland, to increase the bank's flexibility in the event of an unexpected demand for specie by noteholders, began inserting an "option clause" into the obligation printed on its notes. The bank's pound note then promised to the bearer "one pound sterling on demand, or in the option of the Directors one pound and sixpence sterling at the end of six months after the day of demand" (White, p. 26). (This represented an annual interest rate of 5 percent.) Noteholders were apparently willing to accept the option as a means of protecting their interests in the event of illiquidity, and the bank did not exercise the option for more than 30 years after it was introduced.

Failures

Finally, there is evidence that failures did not prove as destabilizing during the Scottish and American free banking periods as many have supposed.

The failure of the Ayr Bank in Scotland in 1772 was the most spectacular during the Scottish free banking period, but it did not appear to imperil the banking system. Because of the nationwide note exchange system, few banks held many Ayr Bank notes at the time of its collapse. Although the public's demand for specie did increase in Edinburgh on the day of the Ayr Bank's demise, this "run" lasted for less than a full day. Eight smaller banks with close business ties to the Ayr Bank also failed, but for the most part the negative repercussions from the failure were short-lived. The Bank of Scotland and the Royal Bank in Edinburgh helped calm any public

[25]Furthermore, stockholders of all national banks and of many state banks were subject to double liability until 1937. In fact, double liability was not completely eliminated for U.S. banks until after 1950.

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fears by offering to accept at face value the notes of the defunct bank. In addition to helping maintain public confidence, the two banks were able to attract new depositors and increase their note issues. The Bank of Scotland and the Royal Bank also advanced specie to the three Glasgow banks to meet unexpected cash demands immediately following the Ayr Bank failure. In the end, the unlimited liability of the Ayr Bank's shareholders meant that the demands of all creditors were met in full (White, pp. 32, 45).

Rolnick and Weber (1986) examined the U.S. free banking period using data collected from state auditor reports in New York, Wisconsin, Indiana, and Minnesota (chosen to reflect a range of experiences with free banking). They sought to determine whether bank failures that occurred in clusters were evidence of a general loss of confidence in sound banks. In other words, did such failures indicate the presence of "contagion" or "spillover" effects often associated with unregulated banking systems?

Rolnick and Weber found four "clusters" of failures between 1841 and 1861. Notably, each group of failures was limited to a single state, leading Rolnick and Weber to look for explanations in the states' policies toward banks and/or state-specific events. In fact, Rolnick and Weber were able to explain three of the four clusters of failures by identifying real shocks that rightfully undermined the public's confidence in the banks that failed. When construction on the Minnesota railroad was suspended in the spring of 1859, those banks whose notes were backed by Minnesota railroad bonds failed. In Wisconsin and Indiana, Minnesota railroad bonds were eligible securities for backing bank notes but, in fact, no banks in these states held these securities to any great extent in their portfolios. Apparently the public was aware of the securities actually held by these banks, for there was no increase in bank failures in these states (Rolnick and Weber 1986, pp. 884–86).

Wisconsin's problems occurred, by contrast, on the eve of the Civil War—between June 1860 and June 1861. Wisconsin accepted bonds from several southern states as bank note collateral. As the Civil War approached, the value of the bonds issued by states likely to secede fell rapidly in northern markets. Again, the public had good reason to reevaluate the stability of those banks that had deposited significant portions of southern bonds as backing for their notes. Among the banks and in the states where southern bonds were not accepted, there were no similar adverse affects (Rolnick and Weber 1986, pp. 886–87).

In short, the evidence presented by Rolnick and Weber (1986) indicates that during the free banking era consumers did differentiate

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among those banks exhibiting different portfolio characteristics. Bank customers could and did force the closure of several banks in a short period of time when the stability of those banks appeared threatened by changing conditions. But there is no evidence that runs then spread to institutions with markedly different and stable securities portfolios. That the market appeared to reject almost simultaneously several banks marked by undesirable traits should be viewed as a demonstration of market-imposed discipline and stability rather than as a sign of instability.

Conclusion

The agency costs literature suggests that in the absence of government guarantees and regulations, market forces would encourage the development of mechanisms designed to limit the costs to bank customers entrusting their funds to depository institutions. It has been argued that readily available sources of information would arise in response to consumers' demands for intelligence about the relative stability of competing banks. Furthermore, it would be in the interest of the stockholders and managers of banks to develop contractual terms and other mechanisms to reassure customers about the safety of their investments. Such "competition in safety," if communicated to consumers of bank services, would allow the banks that employed them to gain market share and to increase the stability of their institutions as depositors would be less likely to panic in the face of adverse news.

The periods of "free banking" in Scotland and the United States provide evidence to support these predictions. These banking systems, established in the late 18th and early 19th century in Scotland and in the mid-19th century in the U.S., were chosen as representing periods of relatively unregulated banking, though the Scottish system was much less regulated than the American system was. While deposit banking was of less importance during the 18th and 19th centuries than it is today, in some ways the important role bank notes played as bank liabilities creates an even more stringent test for the conclusions drawn from the agency costs literature. It can be argued, as it was during the free banking periods, that an individual has less control over the selection of bank notes he holds than over the bank(s) in which he deposits his funds.

It appears that bank customers in Scotland and the U.S. did have access to information about the relative stability of individual banks. Furthermore, in both countries the self-regulatory activities of note exchange systems and clearinghouse associations provided note-

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holders with information about member banks. Noteholders also benefited from contractual terms designed to reassure bank customers. These differences were most apparent in Scotland, perhaps because it was considerably less regulated than the U.S. free banking system.

Finally, these banking systems appeared to be more stable than is commonly believed. Evidence indicates that when a cluster of bank failures did occur, it did so for reasons connected to the practices of or the securities held by the institutions. The public appeared able to discriminate between those banks that exhibited undesirable characteristics and those that did not.

In short, during the U.S. and Scottish experiences with free banking, the problems often associated with unregulated banking seem to be, if not absent, at least not as extensive as common lore would indicate. Bank customers were reasonably well informed, and the market developed mechanisms for protecting their interests in the face of incomplete information.

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Evolution in Banking

A. James Meigs

Catherine England argues that in an unregulated banking system without deposit insurance, various services and institutions would evolve to do what many people now think must be done by government. These new services and institutions would protect innocent bank customers from unscrupulous or inefficient bankers who otherwise would use depositors' funds for unsound or illegal investments, and would protect innocent banks from the contagious effects of other banks' failures.

Then she reviews the experience of free banking systems in Scotland and the United States and finds that such services and institutions did in fact evolve in those periods, much as her theoretical arguments would have predicted.

I found all of this most agreeable and plausible. I would not change any of it.

Her paper raises some intriguing questions:

1. If the system she describes would be so efficient and stable, why has it not already evolved?
2. Why do we have instead the unsatisfactory system we have met here to complain about?
3. How should we expect the system to evolve in the future?

She did not try to answer those questions here. They were not in her assignment for this conference, although she undoubtedly has thought a lot about how we may get from where we are now to the system she describes. She said in her opening remarks that she was going to talk about what would happen the day after the revolution. But evolution of the new services and institutions would take more

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than one day. Therefore, I believe she has raised a problem in understanding the evolution of complex systems.

My observations on this problem will apply not only to England's paper but to most of the papers presented at this conference. For help on this problem I turn to the work of Stephen Jay Gould (1987), who teaches biology, geology, and the history of science at Harvard. He recently illustrated the problem of understanding evolution with a homey example, the typewriter keyboard. He did this with the help of Paul A. David (1986), professor of American economic history at Stanford.

Probably everyone in this room types on the QWERTY keyboard, which is named for the first six letters on the top line. As Gould says, it is "drastically suboptimal." Some of the most frequently used letters are in hard-to-reach positions or are under the weakest fingers. There have been many competitors, including the Dvorak Simplified Keyboard (DSK). DSK is much faster.[1] But no competitors have ever dented the dominance of QWERTY.

Why? This is like our problem with banking. We have a "drastically suboptimal" banking system, even though a superior system might have evolved—or may yet evolve—as England argues. The QWERTY keyboard actually was designed to keep typists from typing too fast, to keep the keys from jamming on a primitive early machine invented around 1867. But why did QWERTY win out over all of its competitors after other machines came onto the market?

According to Gould and Day, a crucial speed typing contest was won on a QWERTY keyboard in 1888 by a typist who had the novel idea of memorizing the keyboard instead of using hunt-and-peck. He had invented touch typing. But the wide publicity his victory received led manufacturers and typing schools to standardize on QWERTY from then on. In short, an accident shaped the course of typing history.[2]

The story of QWERTY illustrates two commonplaces of history, says Gould:

1. *Contingency.* Mammals, or QWERTY, or our heavily regulated banking system are the chancy results of long strings of unpredictable antecedents, rather than the necessary outcomes of natural laws.

[1]There is software for shifting modern computer terminals to a DSK keyboard virtually at a keystroke. However, Apple reports little use of this high-speed alternative on its machines. One person from the audience at the Cato Monetary Conference told me that he had bought software to convert his IBM PC to DSK.

[2]As Gould says, competitions that would have tested QWERTY against other keyboards and other styles of typing were never held. In public perception and in the eyes of those who published typing manuals, QWERTY had proved its superiority.

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Evolution is not a simple, linear process. Chance events can nudge a process into a new pathway with "cascading consequences that produce an outcome vastly different from any alternative."

Two examples of such pivotal events in the history of the banking system that were stressed by several speakers at the conference are the establishment of the Federal Reserve System in 1913 and the Great Depression of the 1930s. Without the first, we would not have had the second, but the two combined had powerful effects on the evolution of banking.

2. *Incumbency.* The second of these commonplaces of history, incumbency, reinforces the stability of a pathway once such chance events push a sequence into a new channel. As Gould says, "Suboptimal politicians often prevail nearly forever once they gain office and grab the reins of privilege." That sounds more like a statement from the Center for the Study of Public Choice than the view of a Harvard professor of biology, but that is what he said.

He went on to say, "If every typist in the world stopped using QWERTY tomorrow and began to learn Dvorak, we would all be winners, but who will bell the cat, or start the ball rolling?" It is not easy. In banking, for each banker or regulator who wants to change the system there are probably ten opposed.

Where does all of this leave us? At the moment, we are stuck with a QWERTY banking system. It is the end result of a long chain of accidents. England as well as others have told us a better keyboard is available. However, because of the power of incumbency, a change of course will be difficult. We should not be too optimistic. After all, says Gould, "Mammals waited 100 million years to become the dominant animals on land and only got a chance because dinosaurs succumbed during a mass extinction."

I hope we don't have to wait for a mass extinction before we can move to Catherine England's more stable system. Fortunately, we are not like those little mammals waiting for the dinosaurs to die out. We can nudge history. In sum, I think we can read England's argument two ways.

In the first, which I call the Gradualist Approach, she says we should not be afraid to take any opportunity for moving even a little way in the direction of her ideal system. For example, we could reduce deposit insurance coverage to introduce more market discipline or take other measures discussed here. The system would not fall apart.

In the second, which I call the Big Bang, she assures us that if we do have a cataclysm, such as the extinction of the FSLIC and the

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thrift industry, we would be ready to propose shifting the direction of evolution heavily toward a freer, more efficient system.

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Reuniting Investment and Commercial Banking

Robert E. Litan

Papers on the Glass-Steagall Act are difficult to write these days. Most economists who have examined the effects of the act have concluded that it has unwisely protected investment banks from competition and has been unnecessary to prevent banks from undertaking excessive risk. The legal profession, meanwhile, has created virtually a cottage industry in the discovery and exploitation of loopholes in the act that render its intended restrictions less and less relevant to the marketplace.

The key question, therefore, is not whether investment and commercial banking should be fully reunited, but how quickly and under what circumstances this marriage in activities will be permitted to occur. If history is any guide, Glass-Steagall will not be removed all at once but rather will continue to be eroded piecemeal, through liberalized interpretations by federal regulators and affirmative expansions of powers of state-chartered banks by state legislatures. Although the ultimate outcome of this process will be desirable—at some point, commercial and investment banking will be reunited—the process itself is less than ideal. During the transition, the economy will not only lose the benefits of unrestrained competition between commercial and investment banks, but the American financial industry as a whole will lose business to foreign competitors in markets abroad where commercial and investment banking are already combined.

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I believe there is a way to accelerate removal of the Glass-Steagall restrictions. It lies in constructing a framework for allowing all types of financial organizations to diversify their activities without jeopardizing the deposit insurance system, and thus without running afoul of the key objections to financial product diversification that many opponents have raised. In this framework, firms that wish to own an insured depository may engage in any other kind of activity provided they confine the activities of the insured institution to accepting deposits and investing them only in liquid, safe securities. This approach is outlined briefly at the conclusion of this paper.

The Steady Erosion of the Glass-Steagall Restrictions

The principal objective of the sponsors of the Glass-Steagall Act, of course, was to sever ties between commercial and investment banks that, at the time, were believed to have contributed to the rash of bank failures experienced during the Depression. Several provisions of the act were instrumental. Sections 16 and 20 prohibited national and state-chartered banks belonging to the Federal Reserve System from underwriting corporate debt and equity securities. Similarly, section 21 made it unlawful for any entity underwriting the prohibited securities to accept deposits. And section 32 prohibited officer, director, or employee interlocks between member banks and securities underwriters.

What is not widely known—outside the legal establishment that specializes in the subject—is that by unwitting omission or design, the Glass-Steagall Act left open numerous ways in which banks could nevertheless participate in various facets of the securities business. Perhaps the longest recognized exception to the act's restrictions is the fact that the act does not bar banks from underwriting debt instruments of the federal government and general obligation bonds issued by states and municipalities.[1] Similarly, the prohibition on bank underwriting of corporate securities does not extend to securities issued abroad.[2] As a result, banks have become major underwriters in both permissible arenas.[3]

[1]The Housing and Urban Development Act of 1968 also enabled commercial banks to underwrite municipal revenue bonds used for housing, dormitory, and university purposes.

[2]The Federal Reserve Board, however, does limit American bank holding companies to $2 million in uncovered commitments of corporate equities in foreign securities markets. But the Board does not restrict corporate bond underwriting in foreign markets by bank holding companies.

[3]Banks currently underwrite about half of the total volume of general obligation municipal bonds. See Kaufman (1985).

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In recent years, bank interest in exploiting other cracks in the Glass-Steagall edifice has grown, particularly as securities houses have found ingenious ways to engage in banking.[4] In 1982 and 1983, the Comptroller of the Currency and the Federal Reserve Board approved bank entry into discount securities brokerage, or the execution of securities trades without the provision of investment advice.[5] Today, over 2,000 banking organizations offer discount brokerage services.

The spirit of Glass-Steagall was frontally assaulted in 1986 by several events. Among the most controversial was the Federal Reserve Board's approval of the purchase of a limited-partnership interest in one of America's leading private investment banks, Goldman Sachs, by one of the largest banks in the world, Sumitomo Bank of Japan.[6] Although foreign banks had already acquired minority ownership interests in two other leading American investment banking houses (First Boston; and Drexel, Burnham & Lambert), Sumitomo's application sparked considerable interest, given both the size of the commercial bank itself and the fact that the bank was headquartered in Japan.

The Federal Reserve Board also signed off during 1986 on a plan effectively allowing bank entry into the mutual fund business, an activity otherwise long off-limits to banks under Glass-Steagall.[7] To circumvent the act's underwriting restrictions, the commercial bank applicant (Bank of America) proposed that its discount brokerage subsidiary (Charles Schwab) would sell its customer list to an invest-

[4]The two most prominent routes through which nonbanking firms have entered banking are by opening limited service (or "nonbank") banks and by owning and operating a single savings and loan. Under the first device, an organization may escape regulation as a bank holding company by operating an insured depository that only extends consumer (but not commercial) loans. The second device allows organizations that own a single thrift to escape the activity limitations imposed by the Savings and Loan Holding Company Act amendments.

[5]Both these decisions were upheld by the courts against challenge by the Securities Industry Association. See Securities Industry Association v. Comptroller of the Currency, FED. BANKING L. REP. (CCH) Par. 99,732 (September 23, 1983); and Securities Industry Association v. Board of Governors of the Federal Reserve System, 716 F.2d 92 (2d Cir. 1983), *aff'd*, 104 S.Ct. 1905 (1984).

[6]The purchase was effected through Sumitomo's American bank holding company headquartered in the United States. Although the Bank Holding Company Act permits bank holding companies to own no more than 5 percent of the voting securities of enterprises engaged in impermissible nonbank activities, the Federal Reserve Board approved Sumitomo's application, which proposed the acquisition of only a passive ownership interest in Goldman Sachs.

[7]Indeed, the Supreme Court's leading decision on the scope of the Glass-Steagall Act, Investment Company Institute v. Camp, 401 U.S. 617 (1971), reaffirmed the act's prohibition against bank offerings of mutual fund shares.

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ment bank (Lazard Frères), which would market the mutual fund shares and inform potential customers that they could be bought through the discount brokerage affiliate of the commercial bank.

Perhaps the most significant blow to defenders of the Glass-Steagall restrictions in 1986, however, came in the last days of the year when a federal appellate court upheld a Federal Reserve ruling that banks were not prohibited under the act from privately placing commercial paper on behalf of corporate issuers.[8] This is a highly significant decision because major money center banks in recent years have lost many of their prime-quality corporate borrowers to the commercial paper market, which thus far has been dominated by investment banks. In 1975, for example, the nine largest money center banks extended 25 percent of all short- and intermediate-term commercial credit in the United States. By 1985, the money center share had fallen to just 15 percent. To compensate for the erosion in their competitive position in this market, banks have been forced to lend to borrowers with higher credit risks. The new court ruling allowing bank entry into commercial paper placement should enable at least some banks to reverse this trend.

Finally, the Federal Reserve Board issued a ruling in April 1987 that could punch the largest hole yet in the wall that Glass-Steagall was supposed to have erected between commercial and investment banking. The Board approved applications by Citicorp, J. P. Morgan, and Bankers Trust for permission to underwrite commercial paper, mortgage-backed securities, municipal revenue bonds, and securities backed by consumer installment debt (automobile loans and credit card receivables) through separate subsidiaries "not principally engaged" in these underwriting activities.[9] The "not principally engaged" exception was written into the Glass-Steagall Act, and the Federal Reserve Board is now in the process of more fully clarifying its meaning. The courts will have an opportunity to rule

[8]See Securities Industry Association, v. Board of Governors of the Federal Reserve System, slip. op. (D.C. Cir., December 23, 1986). Technically, this decision did not permit banks to underwrite commercial paper, that is, to purchase the securities and then resell them. Rather, the decision approved the narrow activity of banks placing commercial paper with ultimate purchasers for a fee without actually taking title to the securities.

[9]Significantly, the superintendent of banking for the State of New York issued a ruling in the closing days of 1986 permitting state-chartered banks in that state to underwrite otherwise impermissible corporate securities (as well as mortgage-backed securities, obligations backed by consumer receivables, and commercial paper) through separate subsidiaries of the banks, provided the underwriting of the otherwise impermissible securities constitutes no more than 25 percent of the affiliate's total underwriting activities.

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on the Fed's actions because the Securities Industry Association has already challenged the new regulation in federal court.

If Glass-Steagall contains as many exceptions as it now appears, why has it taken banks so long to exploit them? A major reason, as already noted, is that not until recently have banks faced significant competition from nonbanking firms, particularly those engaged in securities brokerage and underwriting. With the advent of asset management accounts pioneered by Merrill Lynch, many securities firms now offer a full range of depository services in direct competition with banks. Not surprisingly, banks have attempted to counter the new competition by maneuvering through every loophole that Glass-Steagall permits and that the courts uphold.

Nevertheless, until the act is actually repealed, banks will continue to face some important barriers in competing with investment banks. For example, even though the Federal Reserve has allowed bank holding companies to underwrite various securities through separate subsidiaries, the "not principally engaged" limitation of the act will still impose costs on banking organizations that investment banks do not bear. More importantly, standard corporate debt and equity issues remain off-limits to bank underwriting affiliates, at least until the Federal Reserve broadens the "not principally engaged" exception to cover them as well. In short, while Glass-Steagall may continue to be construed by federal authorities in a progressively liberal fashion, the transition will be time-consuming and costly, both for banks seeking to engage in the broad spectrum of investment-banking activities and for society generally, which must continue to wait for the full benefits of unrestricted competition to materialize.

Benefits of Commercial Bank Entry into Investment Banking

Unrestricted bank entry into all facets of investment banking would prove to be socially beneficial primarily because it would strengthen competition in an industry that at present is imperfectly competitive in terms of a number of measures.

First, profits in investment banking outdistance those of all other financial services providers, including commercial banks. Between 1975 and 1984, securities underwriters as a group earned an after-tax return on equity (ROE) of 16.2 percent. Profits were even higher at the 10 largest investment banks, which recorded an after-tax ROE of 21.5 percent. By comparison, commercial banks during the 1975–84 period had an after-tax ROE of just 12.3 percent.[10]

[10]To be sure, investment bank earnings were more variable over this period than those

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Second, as high as the profits among securities underwriters are, they conceal the high salaries and profit-sharing draws that investment banks pay their personnel, a fact consistent with the tendency of firms in imperfectly competitive markets to incur excessive costs. In the United States in 1985, for example, 5 of the top 25 highest paid executives at publicly held corporations were officers of investment banks (*Business Week* 1986, p. 49). That same year, personnel costs for the 10 leading investment banking firms averaged over $100,000 per employee, compared with approximately $50,000 for the two leading wholesale commercial banks (Bankers Trust and Morgan Guaranty), and $33,800 for all 12 money center banks.[11] Bank entry into the full range of securities activities would compress these differentials in personnel costs because it would reduce profits earned by investment banks as well as permit personnel now employed by commercial banking organizations to be involved in a broader range of investment banking activities.[12]

High profits and salaries, of course, do not mean that an industry is necessarily imperfectly competitive. If entry is relatively free—that is, if the market is "contestable"—excess profits will be driven down as new competitors arrive on the scene.[13] Precisely because of the Glass-Steagall restrictions, however, entry by commercial banks into investment banking is not costless, and in areas such as corporate securities underwriting, it is not even possible. Yet, in the absence of these restrictions, commercial banking organizations would be highly likely entrants into a broad range of investment banking activities. The skills used to evaluate credit risk in extending bank loans, for example, are readily transferable to underwriting securities. Simi-

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of commercial banks. Still, the average ROE of the 10 largest investment banks stood at more than one standard deviation (7.7 percent) above the average bank ROE between 1975 and 1984. The data for all these profit calculations come from the annual editions of the *Securities Industry Association Yearbook* and the *Statistical Abstract of the United States*.

[11]Securities industry data are drawn from Securities Industry Association research reports. Banking industry data are drawn from Salomon Brothers (1986, p. 74).

[12]It is true, of course, that commercial banks now find it difficult to attract high-quality personnel from investment banks without paying the kind of six—and even seven—figure salaries these individuals now earn at investment banks. However, commercial banks are competing in a market in which investment banks still are protected from competition by the Glass-Steagall Act. If that protection were removed, the added competition should reduce profits from investment banking activities. This, in turn, would reduce the marginal revenue product generated by personnel employed by investment banks, which would cause salaries and profit shares to fall.

[13]The new literature on "contestability" demonstrates that even in a concentrated industry, market participants will behave competitively, provided entry is unrestricted. See Baumol et al. (1982).

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larly, banks have networks of relationships with other financial institutions, as well as their own customers, that they can easily use to market securities. Finally, banks already trade government securities and, as discussed below, underwrite certain government obligations domestically, as well as a wide range of corporate securities abroad.

The anticompetitive effects of Glass-Steagall are clearly demonstrated by the fact that concentration levels are considerably lower in underwriting markets in which banks are permitted to participate than in the markets from which banks are excluded. As shown in Table 1, the top five investment banks in 1985 were lead managers for 70 percent of U.S. corporate securities sold in that year (up from 54 percent as recently as 1982) and for 96 percent of all commercial paper placed through dealers. As already noted, banks are effectively prohibited by Glass-Steagall from underwriting in either of these markets. In contrast, five firm concentration ratios in the Eurobond market, in which banks are permitted to participate, have been substantially lower, on the order of 33 to 41 percent. Similarly, the figures in Table 1 illustrate that in the United States, concentration levels have been far lower for underwritings of general obligation municipal bonds, which banks are allowed to underwrite, than for new issues of municipal revenue bonds, which remain off-limits to banks.

Collectively, the foregoing evidence suggests that added competition in investment banking would produce lower fees in each of the securities markets and in other investment banking activities that would be opened to new entry.

Revenue Bonds

Numerous studies have examined the potential benefits of bank underwriting of municipal revenue bonds by comparing underwriting spreads and fees in that market with those for underwritings of state and municipal general obligation bonds. For example, William Silber (1979) reported that all 12 of the studies that had addressed the issue up to that time had found underwriting costs in the municipal revenue bond market exceeded costs in the market for general obligation securities by 7 to 13 basis points. In 1979 that translated into $150 to $300 million in added costs to issuers of those securities. More recent studies making the same comparison come to similar conclusions (Pugel and White 1985, pp. 128–35).

Corporate Securities

It is unclear whether the competitive benefits of permitting bank entry into the underwriting of corporate securities would be of the

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TABLE 1

MEASURES OF SECURITIES UNDERWRITING CONCENTRATION IN THE U.S. AND EUROPEAN SECURITIES MARKETS

	1980	1981	1982	1983	1984	1985
Markets In Which Banks May Not Underwrite Securities						
U.S. Corporate Securities[a]						
Top 5	59	64	54	56	71	70
Top 10	83	84	71	79	91	91
Municipal and State Revenue Bonds[b]						
Top 4	23	27	27	27	N/A	N/A
Top 10	43	50	50	49	N/A	N/A
Dealer-Placed Commercial Paper[d]						
Top 5	N/A	N/A	99	99	98	96
Markets In Which Banks May Underwrite Securities						
Eurobonds[c]						
Top 5	33	37	41	N/A	N/A	N/A
Top 10	47	52	57	N/A	N/A	N/A
Municipal and State General Obligations[b]						
Top 4	15	14	14	18	N/A	N/A
Top 10	31	29	29	32	N/A	N/A

N/A = Not available.
Note: Concentration data based on dollar volume of lead managers for securities offerings.
[a]Federal Reserve Bank of New York, *Recent Trends in Commercial Bank Profitability*, p. 364.
[b]Public Securities Association, *Statistical Yearbook of Municipal Finance: The New Issue Market* (1980–83 editions).
[c]Levich (1985, p. 273).
[d]Data supplied by the Federal Reserve Board.

same order of magnitude as the benefits estimated for bank underwritings of revenue bonds.

On the one hand, the fact that concentration is even higher in the market for corporate securities issues than it is for municipal and state revenue bonds would suggest that the potential benefits of bank entry into the corporate securities field would be even greater than

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those that have been estimated for the state and municipal bond market. On the other hand, competition among corporate securities underwriters appears to have intensified in recent years, despite the increase in market concentration, which suggests that less room is available for improvement. The new factor is Rule 415, introduced in 1982 by the Securities and Exchange Commission (SEC), which permits a company to register all securities of a particular type that the firm reasonably expects to issue over a two-year period. By allowing issuers to pull securities "off the shelf," Rule 415 dramatically reduces the time required to complete an underwriting. Although this provision has given larger investment bankers, which have the capabilities to perform "due diligence" reviews and to purchase entire issues on short notice, an advantage over their smaller competitors, Rule 415 has also made each security more of a "commodity" and thus has intensified competition among underwriters for business. Knowing the volumes of securities on the shelf, investment banks now actively solicit issuers for business, while issuers themselves appear more willing to shop around—tendencies that lead to more competitive bidding (Pugel and White 1985). Studies by the SEC confirm that, on balance, Rule 415 has had a procompetitive effect, lowering spreads on equity issues by roughly 1 percent and spreads on bonds by approximately 30 to 40 basis points (Pugel and White 1985, p. 122).

Nevertheless, opportunities for lowering corporate securities underwriting spreads should remain. The competition is more vigorous among underwriters in the Euromarkets, in which banks are permitted to engage in investment banking, than it is in our own corporate securities markets, providing evidence that permitting bank entry here would strengthen competition.

Merger Advisory Services

Relaxing the Glass-Steagall restrictions against bank underwriting of corporate securities should also benefit corporate customers of advisory services now offered primarily by investment banks. As it is, securities underwriting makes up only a small portion of total revenues generated by investment banks. A far more sizable proportion of investment bank earnings arises out of advisory fees, particularly those collected in connection with mergers and acquisitions.[14]

[14]For example, of the $10 billion in revenues earned by the 10 largest investment banks in 1984, $6 billion originated from activities other than trading and underwriting; indeed, underwriting accounted for only $734 million, or little more than 7 percent of total revenues. Of all national full-line securities firms, only $1.5 billion of $13.1 billion in 1984 revenue was generated by underwriting activities. See Staff of the Federal Reserve Bank of New York 1986, p. 354.

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It is true that the Glass-Steagall Act does not currently bar commercial banks from offering advisory services in competition with investment banks. However, firms allowed to offer both underwriting and advisory services simultaneously have a strong competitive advantage because many mergers and acquisitions require financing through additional securities offerings to the public, whether through debt or equity. The rapid rise of Drexel, Burnham & Lambert to the upper echelons of the investment banking elite, for example, was made possible by the marriage of that firm's merger and acquisition (M&A) advisory talent with its extraordinary ability to place sub-investment-grade securities (or "junk bonds") with investors. Because of the Glass-Steagall Act, however, banks face a severe disadvantage in competing for M&A business because they cannot underwrite securities and may be unwilling or unable to extend loans in the volumes required to complete the necessary financing.[15] Without this disadvantage, certain banks with extensive networks of customer relationships that they could use to market or place securities should be able to provide strong and effective competition for investment banks, and thus bring down advisory fees.

Effects on the U.S. Financial Services Industry

Finally, the early relaxation of the Glass-Steagall restrictions would have another not widely recognized benefit. As discussed further below, recent liberalizations in Great Britain have enabled large foreign banks to affiliate with securities firms headquartered in London and thus to underwrite securities in the London market. As competition for underwritings in London intensifies—and, in particular, as it lowers underwriting spreads—American borrowers should increasingly turn to offering their securities through underwriters operating in Great Britain rather than in New York. This would accelerate a trend that has already materialized toward Euromarket financings by American corporations.[16] Although some of this business will go to London-based securities affiliates of American banking organizations, a good portion can be expected to go to foreign

[15]It is not surprising, therefore, that between 1981 and 1984, banks participated as advisers in only 5 of the largest 100 merger transactions during a period of intensive merger activity (Staff of the Federal Reserve Bank of New York, p. 321).

[16]The limited evidence available indicates that in the recent past, underwriting spreads have been higher in the Eurobond market than in the United States, primarily because it has been essential for Eurobond underwriters to gain the participation of Continental banks (see Levich 1985, p. 277). However, with the entry of major American and Japanese banks into the Eurobond market through British securities subsidiaries, additional competition should bring down underwriting costs in the European securities markets.

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financial organizations, particularly Japanese-owned financial institutions, which are now dominant in the world market and deeply involved in banking and securities activities in London.

Securities business that is lost to foreign competitors, of course, reduces income flows earned by American banking securities firms. Moreover, foreign-owned underwriters will inevitably want to leverage their ability to market the securities of American corporate issuers into capturing other banking and financial business of their corporate customers as well, thereby posing the threat of greater losses in market share for American-based financial institutions. Therefore, the sooner American banking organizations are allowed to compete in an unrestricted fashion in corporate securities underwriting activites in the United States, the more quickly this expected outflow of financial services jobs and income will be halted. Indeed, employment by foreign banks and securities houses operating in London jumped by over 11,000, or 26 percent, in 1986 alone, the largest single-year increase in the last two decades (Blanden 1986, p. 69). Citicorp already has 4,500 employees in Great Britain, Chase Manhattan has more than 2,000, and Security Pacific has more than 1,000 (*American Banker* 1986, p. 19). It is safe to say that many of these employees would be working in the United States rather than abroad if Glass-Steagall were repealed.

Risks of Combining Commercial and Investment Banking

Glass-Steagall was enacted—and has since been defended—primarily to protect banks against excessive risk. Banks, it has been said, would be able to exploit conflicts of interest if they were permitted to underwrite corporate securities, thereby threatening bank soundness and exposing securities customers to potential harm. In addition, securities underwriting itself has been alleged to be inherently too risky for banks to undertake. Finally, it has been argued that depositors' confidence in even a healthy bank could be undermined by bad news from affiliates of the same holding company. Each of these arguments will be discussed in turn below.

Conflicts of Interest

Recent research has cast a much different light on the conflict-of-interest argument than appeared at the time Glass-Steagall was adopted (Walter 1985). Much of the discussion about conflicts before the act was passed was conducted in hypothetical terms, centering on charges that affiliations between commercial banks "might" lead to the fol-

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lowing practices: bank lending to securities purchasers to support buying of securities sold by the underwriting affiliate; bank lending to support issuers of securities underwritten by the affiliate; placement by banks of securities offered by the underwriting affiliate in bank trust accounts; and promotion by money center banks affiliated with underwriters of poor quality securities to correspondent banks.

Although congressional committees investigated these subjects before the Glass-Steagall Act was passed, the hearings centered on only a few banks and produced no evidence of large-scale, industry-wide abuse. In fact, Congress had rejected earlier variations of Glass-Steagall in previous sessions but was finally energized to take action in 1933 by the emergency atmosphere surrounding the bank holiday and by the disclosure that several leading bankers had evaded income taxes by failing to report substantial sums as income.

To be sure, many securities firms engaged in abusive practices during the 1930s, but these problems were hardly attributable to the securities-underwriting activities of banks. Congress addressed these evils in the Securities Act of 1933 and the Securities Exchange Act of 1934 by imposing strict disclosure and registration requirements on all securities firms. Recently, the Federal Deposit Insurance Corporation (FDIC) has added supplemental protection aimed specifically at the securities-underwriting affiliates of state-chartered banks, as discussed below.

Finally, and perhaps most important, banks are already actively engaged in the underwriting of corporate securities in Europe, where securities trading generally is subject to a less intensive regime of regulation than in the United States. Yet there is no evidence that banks have exploited conflicts of interest in that market (Levich 1985).

The Inherent Risks of Underwriting

The second argument supporting Glass-Steagall—that securities underwriting is inherently too risky for banks to undertake—is also flawed. In fact, the underwriting of corporate securities probably involves less risk than extending and holding loans. In a typical securities offering, the underwriter bears the risk of loss for only a few days, whereas a commercial bank bears the risk of a loan default until the loan is due. In addition, by definition, the underwriter deals in assets that are liquid and readily traded; despite the progressive securitization of commercial bank balance sheets, most bank loans remain illiquid because of their borrower-specific characteristics. Moreover, it is ironic that recent research has demonstrated that if anything, the risks of corporate securities underwriting are lower

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than for other types of securities that banks are already permitted to underwrite under exceptions written into Glass-Steagall (Giddy 1985; Saunders 1985).

In any event, as Ely (1988) discusses in a companion paper in this volume, it simply cannot be shown that bank affiliations with securities underwriting operations in the 1920s and 1930s were responsible for the rash of bank failures during the Depression. Less than 600 of the nation's 27,000 banks in 1930 were engaged in securities underwriting, yet 9,000 banks closed their doors between 1930 and 1933 (Peach 1940). Significantly, neither of the money center banks singled out for underwriting abuses in the congressional hearings held prior to the enactment of Glass-Steagall—Chase Manhattan and National City Bank (predecessor of Citibank)—failed.

Affiliation Risk

Although each of the most frequently mentioned risks of permitting banks to underwrite corporate securities is overstated, one risk cannot be dismissed. As discussed earlier, securities underwriting provides only a small portion of the revenues generated by investment banks. Among other activities related to underwriting, investment banks also engage extensively in trading, which can carry with it significant risk.[17] Although banks, too, currently engage in trading activities (related to their holdings of government securities and foreign exchange), the banking industry as a whole has historically displayed far less variability in its earnings than the investment banking industry.[18] Moreover, the earnings patterns of the two industries have been mildly related in recent years; that is, they have fluctuated somewhat together rather than in offsetting fashion.[19] In combination, these patterns suggest that through their affiliations with full-scale investment banking enterprises, some commercial banks may in fact expose themselves to greater risk, particularly as they enter new activities with which they have little experience.

[17]Between 1980 and 1984, for example, profits from securities trading accounted for roughly one-third of the revenues of the 10 largest investment banks (Staff of the Federal Reserve Bank of New York, p. 360).

[18]Based on the same data discussed in the text above, the standard deviation of after-tax ROE for the commercial banking industry between 1975 and 1984 was 1.3 percentage points (around a mean of 12.3 percent). By comparison, the standard deviation of the after-tax ROE for the 10 largest investment banks over this period was 7.7 percentage points (around a mean of 21.5 percent).

[19]Between 1975 and 1984, the correlation coefficient of after-tax ROE for commercial banking and all securities underwriters was .41; for the large investment banks, the correlation was .28.

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The likelihood that certain depository organizations would diversify in a risk-enhancing fashion is not easily dismissed because of the moral hazard effects created by the current system of deposit insurance. Since the inception of the insurance programs, premiums have been assessed as a constant percentage of deposits.[20] As numerous commentators and the FDIC itself have observed, this feature of the insurance system encourages risk taking because it allows federally insured depositories to gather funds at costs that do not fully reflect the risks of the investments those institutions make (Benston 1983; FDIC 1983). Because there is ample evidence that managers of bank holding companies tend to view their organizations as integrated entities (Rhoades 1985; Eisenbeis 1983), the incentives that depository institutions have to take risks at the expense of the insurance agencies can also induce them to assume risks in diversifying into investment banking (as well as other nonbanking activities).

These risks should not be so great, however, that they warrant continuation or even strengthening of the Glass-Steagall restrictions. Moreover, they can be contained with appropriate safeguards to insulate banks from their troubled affiliates, as discussed further below.

Removing Glass-Steagall: The Policy Alternatives

The elimination of the remaining barriers separating commercial and investment banking is inevitable. The only important question is the manner in which this will occur, either in piecemeal fashion or in a clean break.

Piecemeal Erosion

For the past four years, Congress has been deadlocked over the issue of expanded bank powers, including the repeal of the Glass-Steagall Act. The stalemate reflects not only the reluctance of many legislators to settle what has thus far been widely portrayed as a "turf war" between banks, securities houses, insurance companies, and real estate firms, but also an uneasiness about permitting federally insured depositories, albeit through their holding companies, to venture into other businesses.

Even if this deadlock persists in the short run, the Glass-Steagall restrictions will continue to be assaulted from at least three directions.

First, the Federal Reserve itself has begun to gradually widen the exceptions to the act. The recent decision by the Federal Reserve

[20]The statutory insurance premium for both banks and thrifts is one-twelfth of 1 percent. In 1985, however, the Federal Home Loan Bank Board imposed an additional assessment of one-eighth of 1 percent on thrift deposits.

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Board to allow Citicorp, J. P. Morgan, and Bankers Trust to underwrite otherwise prohibited noncorporate securities through subsidiaries "not principally engaged" in these activities laid the foundation for broadening that exception to cover corporate securities as well.

Second, it is inevitable that the states will liberalize the authorities of their state-chartered banks, just as they led the way toward deposit interest rate deregulation in the 1970s and thus far toward nationwide interstate banking in the 1980s. Indeed, a number of states have already permitted their state-chartered banks to underwrite corporate securities.[21] As the states finish eliminating the remaining geographic restrictions on banks and their holding companies, the liberalization of product-line authority for state-chartered banks will continue.

Indeed, the FDIC has already anticipated the movement toward broader state banking powers. In 1984, the agency issued a rule requiring state-chartered banks not belonging to the Federal Reserve System—or those directly supervised by the FDIC—to conduct any corporate securities underwriting their states may allow solely through "bona fide" subsidiaries.[22] According to the FDIC, a "bona fide" subsidiary is one that is capitalized at levels commensurate with the industry standard and that operates with employees, officers, directors, and a trade name different from that of the bank parent.[23] Significantly, the FDIC's 1984 rule also prohibited a bank affiliated with a firm engaged in underwriting from purchasing securities offered by that affiliate during the period in which the underwriting is carried out.

Finally, if liberalizations of Glass-Steagall by federal regulators and by the states are not sufficient by themselves to induce Congress to repeal the act at some point, financial deregulation abroad should do the trick. Other countries (notably West Germany and Switzerland) have long permitted their commercial banks to engage in the

[21]As noted earlier, the boldest step yet has come from New York. But several other states have also permitted banks at least some corporate securities underwriting; these include Alabama, Alaska, California, North Carolina, and Ohio.

[22]Although the FDIC insures both national and state-chartered banks, it supervises only those state-chartered banks that are not members of the Federal Reserve System. Significantly, the Glass-Steagall Act prohibits only national banks and state-chartered member banks from engaging (directly or indirectly) in securities underwriting. State-chartered banks not belonging to the Federal Reserve System are not so restricted.

[23]In addition, the offices of the subsidiary must be physically separate from the bank, although the two may be entered through a common lobby. In 1985, the FDIC proposed a similar rule that would require all insured banks to conduct any insurance underwriting or real estate development activities that their states may allow through bona fide subsidiaries. But as of this writing, the FDIC has not yet implemented this proposal.

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full range of investment banking activities. Earlier this year, Great Britain opened up its securities business to foreign banks and removed its regulation of securities brokerage fees. The London financial markets are booming as a result. Canada is planning to allow its commercial and investment banks to combine later this year. Where commercial banks are able to engage in investment banking abroad, competition among underwriters is more intense—and growing more so—than in the United States. This has not escaped the attention of American corporations, which are turning increasingly to the Euromarkets for financing. This trend is certain to continue, and as it does, American financial institutions will lose business to foreign competitors, especially the Japanese banks that now dominate the list of the top 10 banking organizations in the world. In my view, Congress at some point will react to the expected erosion in the competitive positions of American-based financial institutions by either substantially modifying or repealing the Glass-Steagall Act.

Repealing Glass-Steagall: A Clean Break

The eventual demise of Glass-Steagall is good news for those who are waiting for the benefits of increased competition in investment banking. The bad news is that the piecemeal erosion of the act will take time. In the interim, corporate customers of investment banking services will not only lose the opportunity to obtain immediate benefits of the added competition, but financial business will continue to shift away from American shores.

I have outlined elsewhere a financial restructuring plan that I believe could end the political stalemate over expanded powers more quickly and, in the process, make a clean break with Glass-Steagall (Litan 1987; Litan 1986). Briefly, that plan calls for the creation of a new voluntary option for organizations that own or wish to own an insured depository and also wish to engage in an unrestricted set of nondepository activities (outside those permitted to bank and multithrift holding companies). In exchange for broader powers, those highly diversified institutions that want to operate an insured depository would have to confine the activities of their insured institution solely to accepting deposits (of any maturity) and investing the proceeds in safe, liquid securities.[24] This "narrow bank" could not make

[24]Under one version of the proposal, the permissible asset list would include all Treasury securities and federally insured bonds, which collectively amount to about $1.5 trillion, or twice the total amount of loans held by the top 35 bank holding companies combined. Under an alternative version, the permissible asset list could be expanded to include certain highly rated securitized instruments such as mortgage-backed securities and instruments backed by consumer installment loans (automobile loans and credit card receivables).

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loans. All lending by these highly diversified organizations (as well as all other nondepository activities) would be conducted through separate affiliates, which would rely for funding on uninsured liabilities and equity (just as such nonbank lenders as General Electric Credit Corporation and Commercial Credit do today). No restrictions would be placed on the cross selling of services by these diversified supermarkets.

Several other features of the proposal are worth noting:

- Narrow banks would be eligible for deposit insurance, but at reduced premiums to reflect their lower risk. In addition, narrow banks could be required to report their financial status on a market value basis (rather than historical cost) and adhere to capital requirements on that basis.
- To avoid undue pressure on the securities markets, banking organizations would be allowed to diversify freely as long as they adhered to a 10-year schedule in transferring their loans out of their existing bank to a separate lending affiliate.
- The proposal would apply equally to both banks and thrift organizations, but the smallest banks and thrifts allowed by relevant state or federal law to diversify broadly would be exempted from the separation requirements.

This proposal, which has also been discussed and endorsed in general terms by several others (Wallich 1984; Angermueller 1985; Golembe and Mingo 1985; Karaken 1986), would address each of the concerns that opponents of broader bank powers—including broader securities powers—have raised. First, it would prevent a financial holding company from using the resources of its bank(s) to bail out "risky" nonbank affiliates. In the structure just outlined, deposit-taking subsidiaries would be limited to investing solely in high-quality, marketable instruments; they could not legally channel funds to support affiliated corporations or their customers. Second, the fact that deposits could not be used to finance loans should remove most of the concerns about potential conflicts of interest. Third, the proposed structure should ease qualms that these financial organizations would hold excessive concentrations of economic power. These fears stem in large part from the fact that deposit insurance allows banks to gather large pools of funds and thereby to exercise significant control over the allocation of credit. If the banks in financial holding companies could not fund loans with insured deposits, there would be much less reason to be concerned about the size of the holding company.

Finally, and perhaps most important, the proposed separation requirements have the political advantage of helping to move all of

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the interested financial industries beyond the stalemate that has surrounded the issue of expanded bank powers for the past several years. One does not have to buy my proposal to gain the repeal of Glass-Steagall, however. That day is coming. It is only a matter of time.

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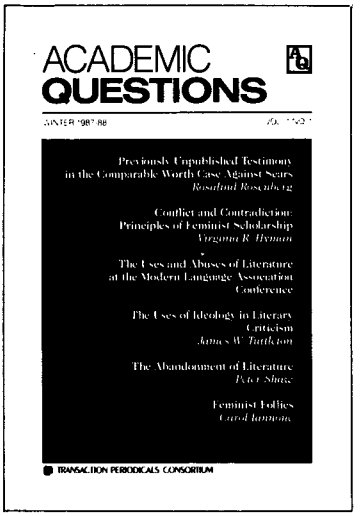
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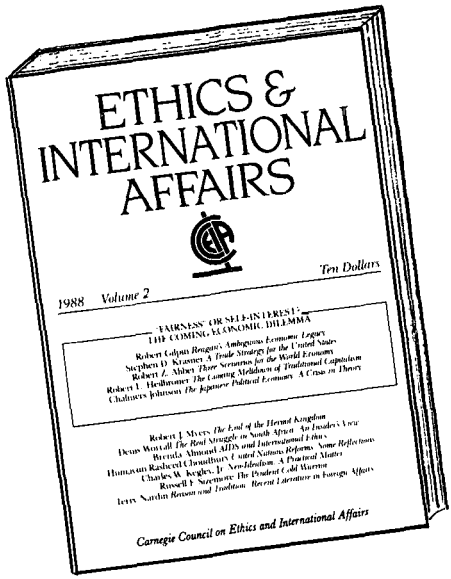

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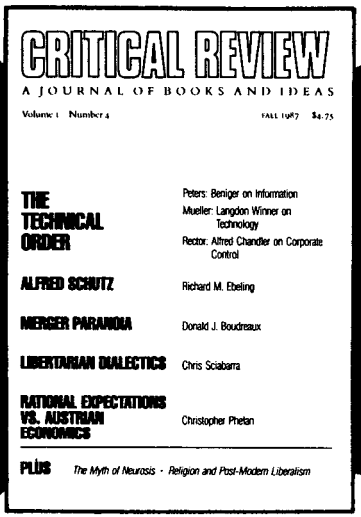

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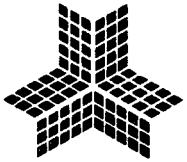

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ON FINANCIAL DEREGULATION

If the Congress does not act, but rather maintains the existing barriers of the Glass-Steagall Act, banking organizations will continue to seek ways to service customers who have increasingly direct access to capital markets. But banking organizations are nearing the limits of their ability to act within existing law; and spending real resources to interpret outmoded law creatively is hardly wise. Without the repeal of Glass-Steagall, banks' share of credit markets is likely to decline. . . . A soundly structured change in the law will allow financial markets to serve us better by lowering costs to users while strengthening financial institutions within a framework that will protect the financial integrity of banks. . . . The events since October 19 have not altered our view that it is both necessary to proceed to modernize our financial system and that it is possible to do so in a way that will maintain the safety and soundness of depository institutions.

—Alan Greenspan

Testimony before the Subcommittee on
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Regulation and Insurance, U.S. House
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